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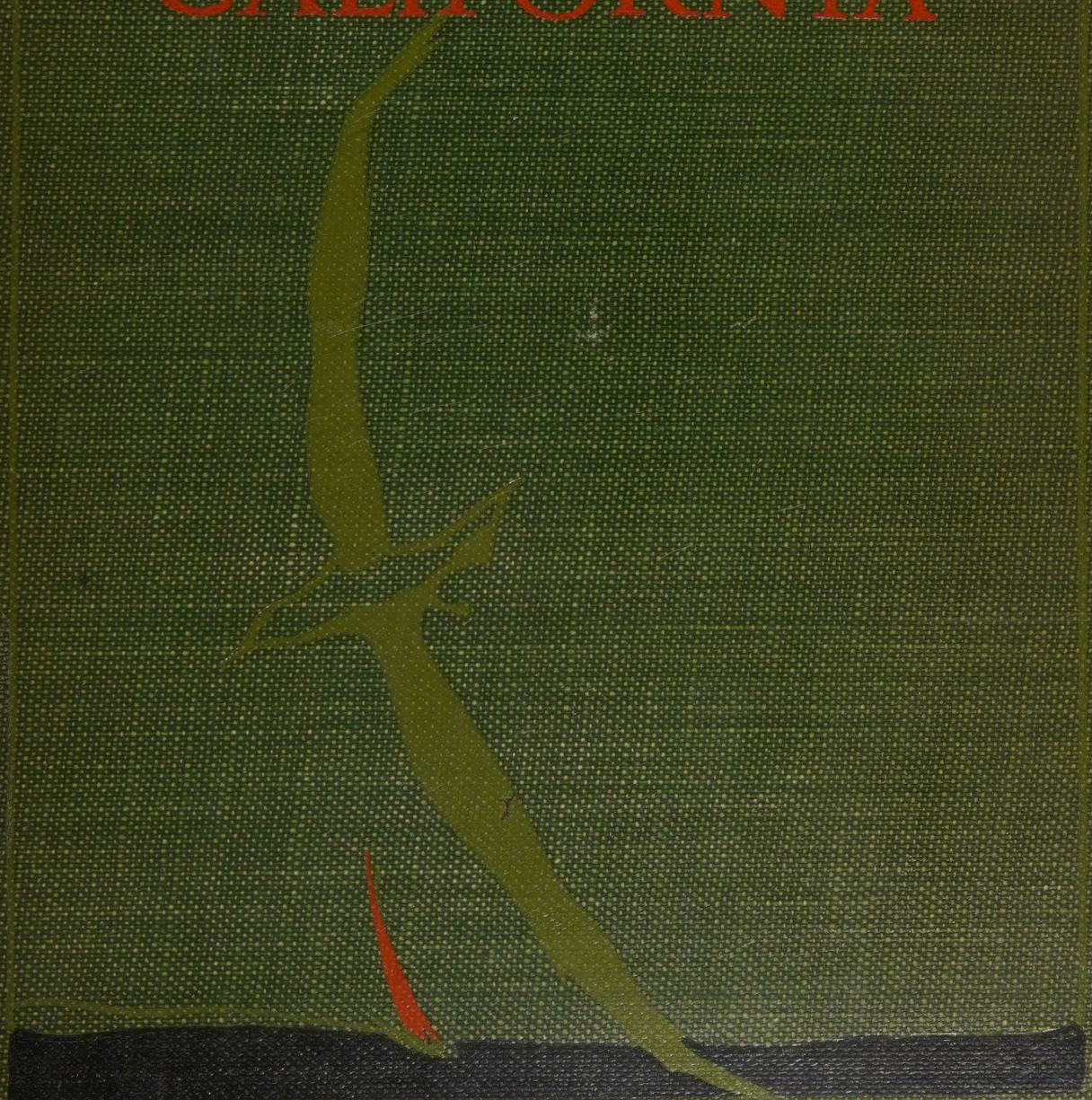

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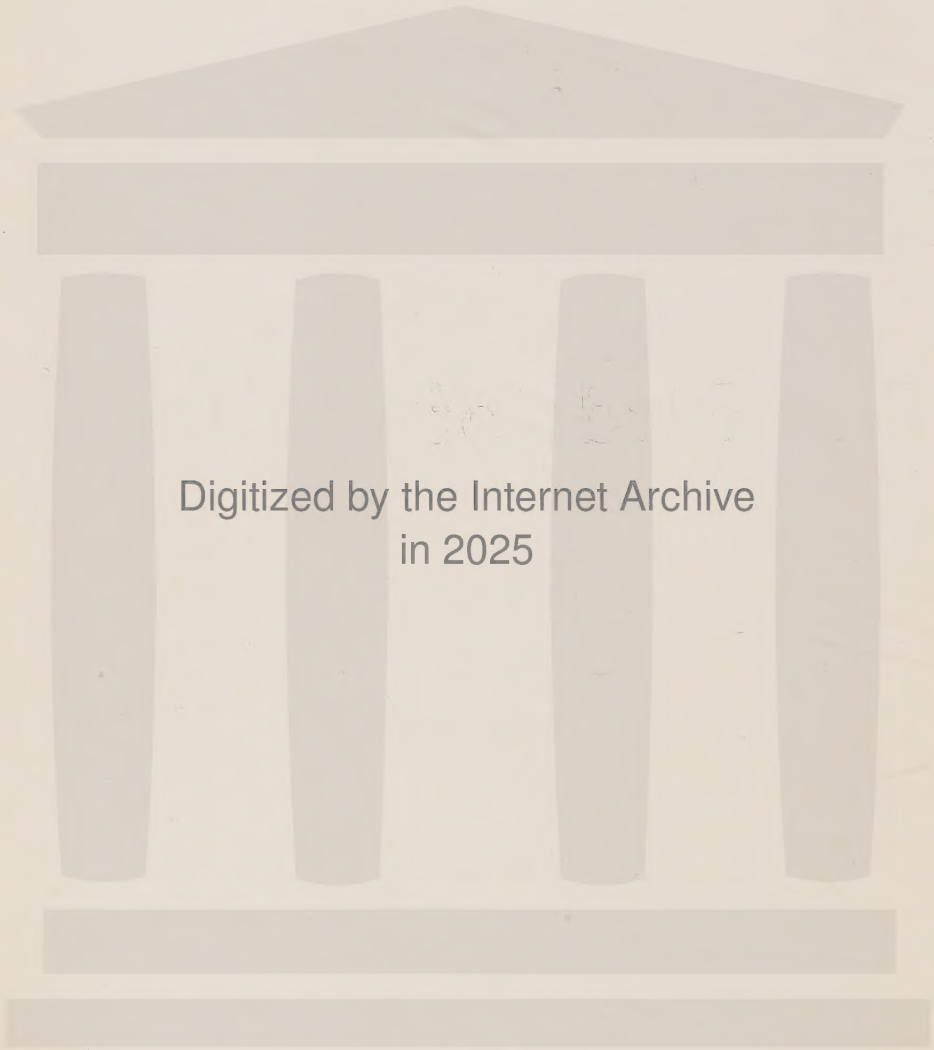
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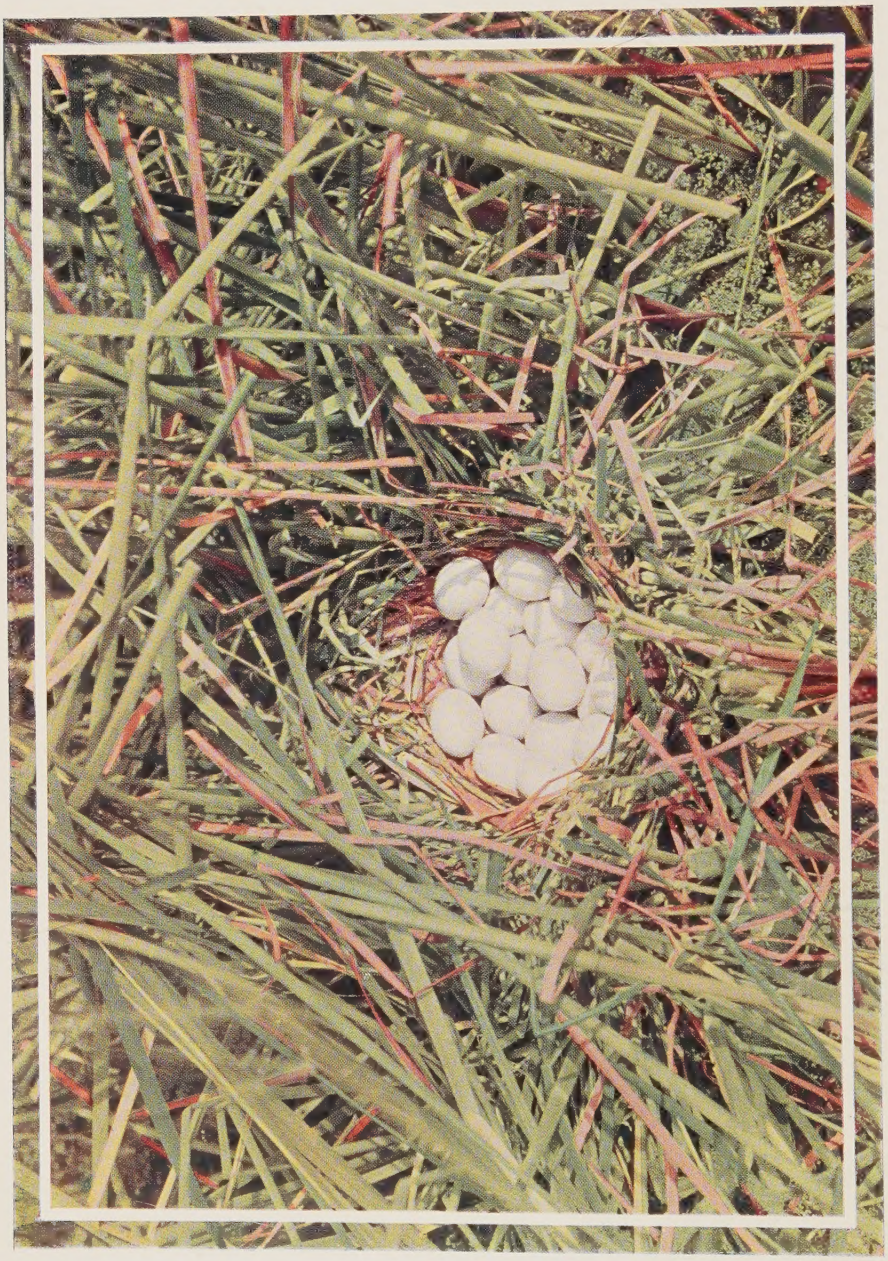

Nest and Eggs of Fulvous Tree Duck

About ⅛ natural size

From an Autochrome Plate by W. Leon Dawson

The Birds of California

A Complete, Scientific and
Popular Account of the 580 Species and Subspecies of Birds
Found in the State

By

William Leon Dawson

of Santa Barbara

Director of the International Museum of Comparative Oölogy, Author of "The Birds of Ohio" and (with Mr. Bowles) of "The Birds of Washington"

Illustrated by More Than 1100 Half-tone Cuts of Birds in Life, Nests, Eggs, and Favorite Haunts, from Photographs

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The Birds of California

Vol. III

Description of Species Nos. 282—424

No. 282

Sabine's Gull

A. O. U. No. 62. **Xema sabini** (Sabine).

Synonym.—Fork-tailed Gull.

Description.—*Adult in summer:* Head and neck all around plumbeous-slate, bordered posteriorly with black; mantle dark pearl-gray; upper border of wing black; exposed primaries chiefly black, the inner ones changing to white marked with plumbeous, the first six with white tips and increasing white on the inner webs; remaining plumage, including slightly forked tail, white. Bill black, tipped with yellow; legs and feet black; eyelids orange. *Adult in winter:* Similar, but slaty color of head and neck reduced to ear-coverts and nuchal region; rest of head and neck white. *Young:* Above, including most of head and mantle, grayish brown, each feather darkening distally and tipped with buffy; tail white, with a broad blackish subterminal band; forehead, lores, upper tail-coverts, and underparts white. Emargination of tail about 1.25; that of young not much less (Coues). Length 330.2-355.6 (13.00-14.00). Average of 10 Monterey specimens: length (skins) 336.2 (13.24); wing 282.9 (11.14); tail 119 (4.69); bill 26.3 (1.035); depth at angle 7.5 (.295); tarsus 35.2 (1.386).

Recognition Marks.—Little hawk size. Black of wings and slate of head and neck more extensive than in *C. philadelphia;* bill black with yellow tip; tail slightly forked; the black ring bordering the slate of head and upper neck all around is also distinctive.

Nesting.—Does not breed in California. *Nest:* A depression in tundra moss, sand-beach, or bare earth. *Eggs:* 2 or 3; buffy olive, marked with brownish olive and sepia. Av. size 43.7 x 30.5 (1.72 x 1.20). *Season:* June–July.

General Range.—The Arctic regions south irregularly to the coast of Peru. Breeds in the Yukon delta, on St. Lawrence Island, along the coast of Mackenzie, and locally on several islands of the American Arctic, and along the west coast of Greenland; also in Siberia at least upon the Taimyr Peninsula. From these centers of dispersion the birds visit other Arctic and sub-Arctic regions at the close of the breeding season, and straggle southward. Migrates chiefly well off shore along the Pacific Coast of America to Cape San Lucas, thence directly (?) to Peru. Occurs irregularly during migrations over the greater part of the United States to the Texas coast.

Occurrence in California.—Apparently a regular spring and fall migrant on the ocean. Usually keeps well off shore, but occasionally straggles to land (Santa Barbara, Aug. 25, 1915; El Cajon, Oct. 10, 1920), and has occurred far inland (Mono Lake, Sept. 1901, Fisher).

Authorities.—**W. E. Bryant** (*Xema sabinii*), Zoe, vol. iii., 1892, p. 165 (San Francisco Bay); *W. K. Fisher*, Condor, vol. iv., 1902, p. 10 (Mono Lake); *Beck*, Proc. Calif. Acad. Sci., ser. 4, vol. iii., 1910, p. 63 (Monterey Bay).

THE OFF-SHORE life of California is a sealed book to most of us. Something of its rich and varied interest has been hinted by the investigations of Leverett M. Loomis and of Rollo H. Beck near Monterey. Now and then a fortunate yachtsman, like Howard Wright of Pasadena, teases our imagination by reports of Sabine Gulls and other rarities seen on the

waters adjacent to the Channel Islands. But of the great tides of life which annually or semi-annually surge upon and down our coast, we know almost nothing. It is only when a reckless Larine sailor, a juvenile most likely, puts into port that we hail the "record" and flatter ourselves with an increase of knowledge. Or again, some luckless wight, forespent with storms, pays tribute to mortality and wills his carcass to some beach-prowling ornithologist. It is by such devious glimpses that we guess that Sabine Gulls skirt our borders by tens of thousands—early and rapidly in May; early and slowly on the return in August, or, more tardily, till October. Off-shore records abound but they are only records of glimpses.

Sabine's Gull, although pretty careful to avoid the shore as such, is, nevertheless, a poor marksman in aiming his southern flight. There are casual records of its migratory appearance from almost every state in the Union; and Colorado has almost come to expect annual visitations. There are, however, only three or four records of coastal contact in California, and one from the interior, Mono Lake, by W. K. Fisher. A young bird with a dark mantle seen at Santa Barbara on the 27th of August, 1915, was examined under binoculars, but not shot. The forked tail, which is the distinguishing character of this species, appeared, as the bird squatted in the mud and tilted the member in preening, displaying at the same time a terminal black band which is a sign of immaturity. The hinder edges of the wings were extensively white, so that the bird in flying produced a momentary impression of likeness to a Willet. The "face" was extensively white, giving way to a nondescript dusky, like that of the mantle.

Of the occurrence of this bird upon its northern breeding grounds Nelson has left us the best account: "Sabine's Gull has a single harsh, grating, but not loud note, very similar to the grating cry of the Arctic Tern, but somewhat harsher and shorter. When wounded and pursued or captured it utters the same note in a much higher and louder key, with such grating file-like intensity that one feels like stopping his ears. It has the same peculiar clicking interruptions which are so characteristic of the cry of a small bat held in the hand. A low, chattering modification of this is heard at times as the birds gather about the border of a favorite pool, or float gracefully in company over the surface of some grassy-bordered pond. The same note, in a higher key, serves as a note of alarm and curiosity as they circle overhead or fly off when disturbed. When one of these gulls is brought down, the others of its kind hover over it, but show less devotion than is usually exhibited by the terns.

"On June 13, 1880, about 20 miles from Saint Michaels, while egging in company with some Eskimo, we found a pond some 200 yards across,

in the middle of which were two small islands. A gunshot caused at least one hundred of these gulls to rise like a white cloud over the islet, and showed us that we had found a breeding place. As we stood on the shore a few birds came off, and circling close about us for a few moments, but rarely making any outcry, returned to the island, where the others had already settled again and appeared to be sitting upon the ground. The water of the lake we found to be about waist-deep, under which lay a solid bed of ice of unknown depth.

"The smallest island lay nearest, and sending one of my men out to it he found a set of two eggs of the Black-throated Loon, one set of the Arctic Tern's eggs, and two of Sabine's Gull. Proceeding to the next island he found a set of *Aythya marila nearctica* eggs as he stepped ashore, and a moment later cried out that the ground was covered with gulls' eggs. At the same time he answered with chattering teeth that the water in the lake was very cold. Having never seen the nest of this gull I called my man back and he transported me upon his back to the island after narrowly escaping several falls on the way. The island was very low, and the driest spots were but little above the water. Built upon the driest places were twenty-seven nests, containing from one to three eggs each, and as many others just ready for occupancy.

"While I was securing my prizes the birds hovered overhead in great anxiety, although they rarely uttered their grating cry, and in the very few instances when a bird darted down at us it was in perfect silence. While we were on the island several Glaucous Gulls and Jaegers passed by, and in every case they were attacked by several of the *Xemas* and driven hastily away."[1]

No. 283

Caspian Tern

A. O. U. No. 64. **Hydroprogne caspia** (Palias).

Description.—*Adult in spring:* Top of head and nape uniform lustrous black; upperparts pearl-gray, whitening somewhat on rump and posteriorly; wing-quills not especially different, the silvery gray nearly concealing dusky on exposed portions; inner webs plain grayish dusky; *tail slightly forked* for about one-fifth of its length,—folded wings considerably exceeding; remaining plumage white. Bill very stout,—the depth at base being nearly equal to one-third the length of culmen,—bright coral-red,

[1] "Nat. Hist. Coll. in Alaska," E. W. Nelson, pp. 57-58.

slightly tinged with dusky at tip; feet and legs black. *Adult after breeding season and in winter:* Similar, but black of crown speckled or streaked with dull white. *Young:* Black cap of adult represented by spotting on top of head (on grayish white ground), increasing in density until nearly uniform on hind head; above dull pearl-gray, sparingly spotted or barred with brownish dusky; primaries darker than in adult; tail pearl-gray with dusky subterminal spots, or indistinct barring; remaining plumage white, bill orange-red; feet brownish black. Length 508-584.2 (20.00-23.00); wing 412 (16.25); tail 127-165.1 (5.00-6.50); bill 69.85 (2.75); depth at base of bill 20.3-24.1 (.80-.95); tarsus 45.7 (1.80).

Recognition Marks.—Crow to gull size, largest of the terns; heavy bill and general tern characters distinctive for size; frequents lakes and interior marshes rather than seacoast; harsh guttural notes.

Nesting.—Not known to breed in California. *Nest:* A mere depression in gravel or sand. *Eggs:* 2 or 3; pale olive-buff or olive-buff, finely and rather sparingly round-spotted with sepia and buffy olive, brownish olive, and with violet-gray under-shell markings. Av. size 62.2 x 43.2 (2.45 x 1.70).

General Range.—Nearly cosmopolitan, but not recorded from Greenland, Iceland, Japan, and Oceanica, nor from the continent of South America. In America breeds very locally and in widely separated colonies, in part as follows: mouth of the Mackenzie, Great Slave Lake, coast of southern Labrador and islands of Newfoundland, Gravel and Gull Islands in northern Lake Michigan, Klamath Lake in southern Oregon, Cobb's Island, Virginia, South Carolina and the Gulf States. Also breeds in Albania, on islands in the Caspian Sea and the Persian Gulf, the mouth of the Zambezi River, and (in isolated pairs, *fide* Campbell) about the coasts and estuaries of Australia and New Zealand. In America migrates (or wanders at the close of the breeding season) to the lower Yukon Valley and James Bay. Winters south along the South Atlantic and Gulf Coasts, and from California to western Mexico.

Occurrence in California.—Not common migrant and rare winter resident both coastwise and interiorly. Non-breeding birds linger about the northern lakes in summer and records of former breeding are very probable.

Authorities.—**Ridgway** (*Sterna regia*), Bull. Nutt. Orn. Club, vol. vi., 1881, p. 124 (Stockton and San Francisco); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 15 (occurrence in s. Calif.); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 23 (occurrence in Calif.).

WE ARE doubtless slaves to nomenclature. Careers have been made or marred by early choice of names, avian no less than human. By no possibility could we think of this sturdy giant among Terns as a "Native Son," even if it bred in California as plentifully as it does in Oregon. For 150 years this species has borne the name Caspian, and that for practical purposes is equivalent to alien. But also the distinction is not unjust. *Caspia* is a foreigner. The Caspian Tern is cosmopolitan; and Cosmopolitan Tern would perhaps have been a better name for it. A cosmopolitan species is necessarily a rigid, non-plastic species. It has arrived. Its habits are established. If it is no longer characterized by aggressiveness, it has at least nothing to fear. It has made its peace with varied conditions and has achieved a static goal.

It is impossible, for a sensitive person at least, to escape a sort of awe in the presence of one of these world travelers. He has seen so many skies, and weathered so many storms, and tasted so many viands, and thought so many thoughts. He is, as a consequence, as alert as he is placid, as independent as he is tolerant, and above all things, self-reliant and capable. This may sound like fanciful stuff for appreciation of a bird, but the root of it is there in the dynamic of the species, even if the individual escapes recognition.

Taken on Lower Klamath Lake *Photo by William L. Finley and Herman T. Bohlman*

HOME LIFE OF THE CASPIAN TERN

The Caspian Tern is known on our borders as a casual sort of a migrant and an occasional winter resident. Its appearance may be instantly recognized from its tern-like character; and as surely distinguished by its stouter, more gull-like proportions, its heavy red beak, and its shorter, squarer tail. Its voice, too, is heavier than that of any other tern, and by this especially it betrays its foreign breeding. On critical occasions, or as mere apprisal, the bird utters a snarling croak, *jay awk'* or *snay owk'*, which we are willing, without debate, to set down as Russian.

The Caspian Tern

In carriage the Caspian Tern does not differ especially from its fellow *Sternæ*. It frequents lakes, ponds, water-courses, and brackish lagoons during the migrations, or else parallels the sea-coast in its major flights. It quarters the waters with down-turned beak, like any other Tern, and it foregathers with its Larine fellows on the sunny beaches, or at the mouths of estuaries. Surface fishes form its almost exclusive diet, these and a sample or two, during the breeding season, of baby terns of the lesser sorts.

Taken on Lower Klamath Lake *Photo by W. L. Finley and H. T. Bohlman*
A BREEDING COLONY OF CASPIAN TERNS

As a breeding bird the Caspian Tern has succeeded in building up a dual reputation. Some describe the birds as solitary nesters, while others give circumstantial accounts of crowded colonies. Both traditions, are, of course, correct, and this adaptability to local circumstances has doubtless guaranteed the cosmopolitanism of the race. For example, the species is found only in isolated pairs on the headlands and outlying islands of Australia and New Zealand. Under such circumstances the male bird keeps a jealous watch over the surrounding country, and will threaten the approaching stranger by spirited swoops and harsh cries, though he be half a mile away from the spot where two or three eggs repose upon the bare shingle. Solitary pairs have likewise been seen at the mouth of the Mackenzie River, and the bird breeds in the Gulf of Bothnia, as it does also at the mouth of the Zambezi, and on the Yukon River as far up as St. Michael. A small colony of breeding birds was seen on the sand banks of "Adam's

Bridge" in Ceylon; and certain islands at the head of the Persian Gulf boast large colonies.

The Caspian Terns breed in colonies of considerable size upon certain of the federal reservations and elsewhere about the lakes of central Oregon. The story of the association of this species with *Larus californicus*, *L. delawarensis*, *Pelecanus erythrorhynchos*, and others, will make an epic of heroic proportions, but we will leave it to the skilled pen of Mr. Finley in a prospective and hopeful "Birds of Oregon." It is worth mention, though, that the American colonies of *H. caspia* seem to be permanently separated from those of the Old World, and that the American birds do not go further south in winter than about the middle of the Mexican coast. There is no record of the species from Central or South America.

No. 284

Royal Tern

A. O. U. No. 65. **Thalasseus maximus** (Boddaert).

Synonym.—Cayenne Tern.

Description.—*Adult in breeding plumage:* Top of head, narrowly, including eye, and lengthened occipital feathers, lustrous black; mantle pale pearl-blue, changing to white on rump and inner webs of tertials; exposed primaries chiefly blackish as to ground, but heavily plated with silvery gray, extensively white on concealed inner webs; tail, deeply forked, palest pearl-gray-tinged. Bill rich coral-red or orange-red, paling terminally; feet and legs black, soles yellow. *Adult in winter:* Similar, but forehead and lores chiefly white, and feathers of crown and nape decreasingly bordered with white; tail duller and lateral feathers reduced in length. *Young of the year:* Top of head much as in adult in winter, but occipital crest undeveloped; remaining upperparts chiefly white, or with irregular irruptions of pearl-gray, and marked with small brown spots on back, and especially the inner secondaries. Tail with plumbeous and brownish. Length of adult 457.2-506 (18.00-20.00); wing 355.6-381 (14.00-15.00); tail 152.4-203.2 (6.00-8.00); forked for 76.2-101.6 (3.00-4.00); bill 61.-69.9 (2.40-2.75); depth at base 20 (.79); tarsus 135 (5.32).

Recognition Marks.—Crow size, but much more elongated and graceful proportions; deeply forked tail and conspicuous red bill serve to distinguish from the gulls with which it is likely to be associated in winter; larger and with stouter bill than *T. elegans*.

Nesting.—Does not breed in California. *Nests* in colonies on bare sand or beach shingle. *Eggs:* 2 or 3, single in tropical latitudes, ovate, palest olive-buff to pinkish buff, boldly round-spotted or blotched or short-scrawled with black or brownish black, the spots often shadowed by tawny olive. Av. size 63.5 x 44.5 (2.50 x 1.75). *Season:* March–July, according to latitude; one brood.

The Royal Tern

General Range.—Coasts and islands of warm temperate and tropical zones in the Americas and west Africa. Breeds along the Atlantic and Gulf Coasts from Virginia (Cobb's Island) to Brazil and Argentina (?). Not certainly recorded as a breeder from the Pacific Coast, but probably does breed on islands in the Gulf of California. Occurs on the Pacific Coast from Tomales Bay, California, to Peru. Found also in winter along Atlantic Coast of Africa from Morocco to Angola.

Occurrence in California.—Irregularly common coastwise at any season, but chiefly in winter, north at least to Tomales Bay.

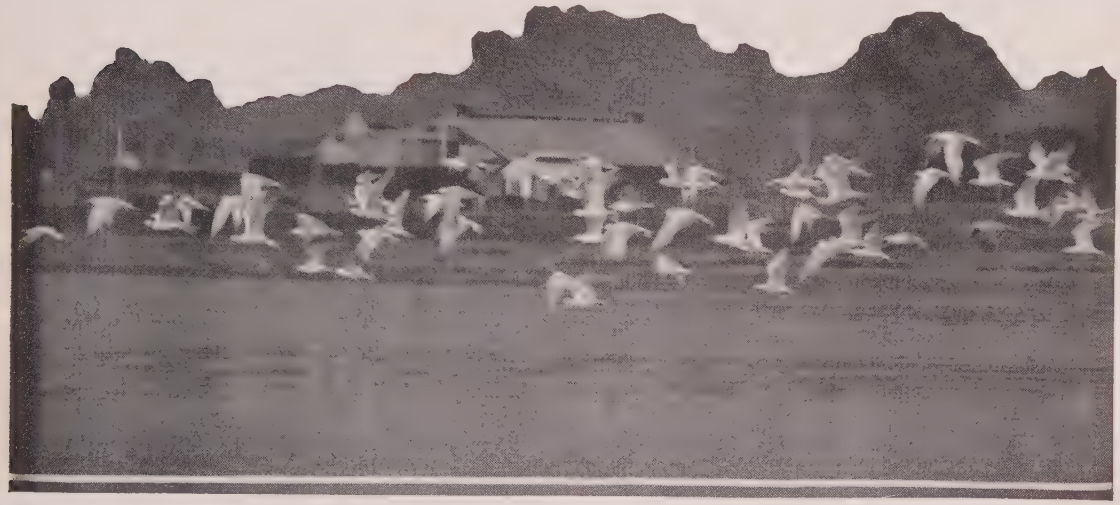
Authorities.—**Lawrence** (*Sterna regia*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 859 (Presidio; San Diego); *Nordhoff*, Auk, vol. xix., 1902, p. 213 (Elsinore Lake, Riverside Co.); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 24 (occurrence in Calif.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 29 (s. Calif. ids.).

WE KNOW the Royal Tern chiefly as a loiterer and dreamer about our southern beaches and backwater bars. Its associations are rather with the gulls than with the lesser terns, and any established loafing place where gulls foregather is likely to harbor a group from ten to fifty strong of these demure "strikers." In addition to their lower draft (if one may apply the nautical term to birds ashore), their brilliant red beaks are sure to attract attention in any mixed company. A distant approach is regarded gravely—a black cap gives majesty a perpetual frown. There is some shifting of position, with a rolling gait, some consultation with friends, and then a desultory exodus sets in long before the stolid gulls have taken alarm. On those rare occasions when royalty speaks, one hears a high-pitched squeaking note, entirely out of keeping with the size of the bird, such as, by comparison with a Common Tern, one might rather expect from a Least.

The occurrence of the Royal Tern along our coasts is another example of reverse migration; i. e., of migration northward at the close of the breeding season. The bird is common enough, though never abundant, from September to May, as far north as San Francisco Bay; but it is never common in summer; and the few examples to be seen at that season may be confidently set down either as immatures or as sterile senescents.

This reverse migration of the Royal and Elegant Terns along the coast of the Californias is the more remarkable in that it contradicts the habit of eastern birds; for these breed north as far as the coast of Virginia (formerly to New Jersey) in June and July, and retire to the southward in middle September. Indeed, it is not impossible that the very birds which are hatched on Cobb's Island in Virginia forsake the Atlantic seaboard in the autumn, cross the Isthmus, and turn north to Monterey or south to Lima, as the case may be, for the winter. At any rate, we have no authentic account of the nesting of the Royal Tern in Pacific waters.

In its own person the Royal Tern bridges the gap between the monotokous terns of the tropics, and the more prolific breeders of the temperate zone, for in the southern portion of its breeding range, the West Indies, *T. maximus* deposits but a single egg on the bare sand, while in the Carolinas and in Virginia it lays two or even three eggs in a clutch.



Taken in Santa Barbara *Photo by the Author*

A FLIGHT OF ROYAL TERNS

No. 285

Elegant Tern

A. O. U. No. 66. **Thalasseus elegans** (Gambel).

Description.—*Adult in summer:* Very similar to preceding species, but smaller and with much slenderer bill; white of underparts flushed with rosy; wing pattern as in preceding (?) (So Coues; but the only Berkeley specimen, #18382, a male, taken at Monterey, Oct. 27, 1910, has the three outer primaries almost destitute of silvery —plain blackish instead); tail deeply forked, pure white. Bill bright red, changing to salmon on tip; feet and legs black. *Adult in winter:* Black of head reduced as in *T. maximus;* rosy flush of underparts reduced or wanting; tail marked with pearl-gray, not so long by an inch or so. *Young* said to resemble those of *T. maximus.* Length in summer up to 482.6 (19.00), of which tail 190.5 (7.50), forked 88.9 (3.50); in winter 406.4-431.8 (16.00-17.00), of which tail 133.3 (5.25), forked 63.5-76.2 (2.50-3.00); wing 317.5 (12.50); bill 63.5 (2.50); depth at base 12.7 (.50); tarsus 31.75 (1.25).

Recognition Marks.—Crow size; a middle-sized tern, to be distinguished from its smaller congeners by its relatively larger and longer, bright red bill, and from *T. maximus* by smaller size and much slenderer proportions of beak.

Nesting.—Does not breed in California. *Nests* in colonies. *Egg:* Single, deposited on bare sand, highly variable as to ground-color, pale olive-buff, tilleul buff, or ivory-yellow to vinaceous buff and pinkish buff, spotted sparingly with black or sepia self-tones. Av. size 53.5 x 38 (2.10 x 1.50).

General Range.—Pacific Coast of the Americas, breeding (at least) on islands in the Gulf of California, and occurring south to Peru. Wandering north (at close of breeding season only?) to San Francisco Bay.

Occurrence in California.—"Rather uncommon and probably irregular fall visitant northward along the sea coast as far as San Francisco Bay. Definite stations and dates of occurrence: Pacific Beach (near San Diego), Sept. 21; vicinity of Morro [coast of San Luis Obispo County], Sept. 22–Oct. 4; Monterey Bay, Sept. 22–October 29; San Francisco Bay (date not recorded)"—Grinnell, 1919.

Authorities.—Cooper (*Thalasseus elegans*), Proc. Calif. Acad. Sci., vol. iv., 1868, p. 10 (San Francisco Bay); *Loomis*, Proc. Calif. Acad. Sci., ser. 3, Zool., vol. ii., 1900, p. 319 (Monterey); *Grinnell*, Condor, vol. xxi., 1919, p. 230 (Morro, San Luis Obispo Co., desc.; history of species in Calif.).

WITHOUT doubt the Elegant Tern is the Pacific analogue of the larger *maximus*, which has only recently invaded the ancient preserves of *elegans*. Elegance is only a smaller edition of Royalty, slimmer, trimmer, more graceful, and very much rarer along our coasts. It would be a rash authority who would publish "records" of this species based on observation alone, yet I feel fairly confident that we have seen it several times at Santa Barbara.

Dr. Joseph Grinnell, who with his associates, Messrs. White and Dixon, had a rare opportunity to study this species and to take specimens at Morro Bay, in San Luis Obispo County, concludes that there is no positive mark of field identification for the Elegant Tern, except its relative size when seen in company with Royals, or the lesser breeds, such as Forsters. The Elegants weigh almost exactly twice as much as the Forsters, but only half as much as the Royals, with whom they are most frequently associated.

The Elegant Tern breeds in large colonies, which establish themselves upon low-lying islands in the Gulf of California or off the lower coast of western Mexico. Single eggs, highly variegated, are rarely beautiful in markings, and are dropped upon the bare sand. Home is thus a mere contact with the ground, and the whole colony is likely to be devastated repeatedly by tropical storms before it is finally successful in its efforts to reproduce its kind.

No. 286

Forster's Tern

A. O. U. No. 69. **Sterna forsteri** Nuttall.

Description.—*Adult in summer:* Top of head and nape sooty black; rump white, shading on upper tail-coverts; remaining upperparts pale pearl-gray; wing-quills dusky, heavily overlaid to tips with silvery gray, with ivory shafts, and with white (decreasing inwardly) on the inner webs; tail the color of back, deeply forked, the outer pair of feathers much elongated and tapering, reaching beyond the tip of the folded wing; *their inner webs of a much darker gray than the narrow outer webs;* underparts white; bill dull orange basally, the terminal half, or at least third, blackish; feet orange-red. *Adult in winter:* Similar, but black cap wanting, represented only by broad black stripe on side of head (including eye), and by grayish tinge of hind-head and nape; tail shorter and not so deeply forked, the outer feathers broader and less tapering. Bill duller, the dusky tip scarcely contrasting; feet dull reddish. Previous to renewal in the autumnal moult, most specimens have completely worn off the silver "plating" of the outer primaries; leaving them brownish dusky. *Young:* Like adult in winter, but upperparts extensively varied by or overlaid with light brownish; tail shorter, its feathers becoming dusky terminally. Length 355.6-406.4 (14.00-16.00); wing 254 (10.00); tail, the central feathers, 71.1 (2.80), the lateral pair 171.5-190.5 (6.75-7.50); bill 38.1 (1.50); depth at base 10.2 (.40); tarsus 24.9 (.98).

Recognition Marks.—Size of Common Tern; distinguishable from it by subtle but sure marks; the bill is stouter and more extensively black on terminal portion; the upper tail-coverts are grayer; the tail more deeply forked, and the outer pair of feathers dark on *inner* webs.

Nesting.— *Nest:* In scattered colonies, in marsh on low or partially inundated ground; a shallow, broad-skirted crater of interlaced grasses or sedges plucked green, occasionally of assorted drift materials. *Eggs:* 2 or 3; ovate; variable as to ground, greenish, olive-buff or pinkish olive-buff to dark olive-buff, yellowish glaucous, dull chamois, etc., handsomely spotted or blotched with black or brownish black, or with sepia self-tones and mold gray undershell markings. Av. of 12 sets in the M. C. O. coll.: 42.7 x 30 (1.67 x 1.18); index 71. *Season:* c. June 1st; one brood.

General Range.—North America. Breeds in the interior from northern Washington, Saskatchewan, and Manitoba, south to central California, Nevada, northern Colorado, northeastern Illinois, etc., and along the Atlantic and Gulf Coasts, locally, from New Jersey to Texas. Winters from the South Carolina and the Gulf Coast south to Guatemala and from southern California to Oaxaca.

Distribution in California.—Abundant spring and fall migrant especially coastwise. Breeds sparingly in suitable localities both east and west of the Sierras south at least to Los Banos (eggs taken May 23, 1914). Winters sparingly along the coast in the San Diegan district, and casually north to Stockton and Santa Cruz.

Authorities.—Lawrence (*Sterna forsteri*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 862 (Sacramento Valley); *Ray*, Condor, vol. v., 1903, p. 47 (Lake Tahoe, breeding; desc. nest and eggs); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 16 (status in s. Calif.); *McAtee*, U. S. Dept. Agric., Farmers' Bull. 497, 1912, p. 22 (food).

Taken in Merced County *Photo by the Author*
A SYLPH-LIKE CREATURE

FORSTERI, and not *hirundo*, is really the "common," middle-sized tern of California. Whether upon the interior lakes, where it reigns supreme, or upon the bars and beaches of southern California, it is the only member of the *forsteri—hirundo-paradisæa* group which the casual observer is likely to encounter. In migrations this species appears freely along the coasts, and it undoubtedly mingles more or less with migrating *hirundo*, for specimens of both species have been taken at a single discharge.[1] And yet we judge that *forsteri* does not occur so often nor so abundantly in the great off-shore movement, and that it exhibits a greater proprietary attachment than do the other species for the brackish lagoons and harbor bars.

As in the case of so many other shore-bird species, the migratory movement of *forsteri* is rapid and business-like in spring but more leisurely and diffused in the fall.

Forster's Tern is preëminently a marsh-loving species, and its summer range includes such of our larger lakes as have shallow borders, and the great overflow areas tributary to the San Joaquin and Sacramento rivers. The birds arrive in late April or early May, but they take only a languid interest in local affairs until late May or early June, or until such time as the water levels for that season are fairly established. The Forster Tern is one of those species which is peculiarly at the mercy of the elements. Normally, it constructs a well ordered cone (a shallow frustum, to be exact) of green herbage, water-weeds, and half-laced sedges, with contents lifted well above the moist earth; but frequent experience of disastrous flood has driven the birds to adopt various expedients. Chief among them is the seizure of other nests more fortunately conceived, as for example, those of the Western Grebe (*Æchmophorus occidentalis*). Although the grebe has a cruel beak, she seems unable, or unwilling, to use it in self-defense, and will not contest possession with the saucy tern, even though her own eggs be half incubated. The nest shown in the illustration on page 1446 happened to be a fresh one, upon which the tern had

[1] Notably at Hyperion in Los Angeles County. See Condor, Vol. XVI., p. 41.

made very hasty requisition; but I have seen others in which the eggs of the rightful owner were nearly buried under a little turret of dried reeds, upon which the tern had been allowed to lay her full complement.

In regions where muskrat houses are common, the terns use them as nesting sites; and where the accommodations are ample, or the colony crowded, share them to the number of two or three pairs to a turret. Occasionally the birds succeed in improvising floating nests of their own, where the water is quiet and offers support of submerged vegetation.

Taken in Merced County *Photo by the Author*

HOVERING

Taken in Merced County *Photo by the Author*

A NESTING HAUNT OF THE FORSTER TERN

In the Los Baños country, whose wide watery stretches seem to possess an irresistible charm for these terns, the arbitrary handling of the flood gates brings disaster to many a colony, and a whole season's effort, renewed and persistent on the birds' part, may prove fruitless in the end.

For all that the terns are often interlopers themselves, the brooding bird resents intrusion, diving angrily at the human visitor and giving vent to the only cry which this bird utters, a harsh, low *ă-ă-ă* (like the *a* in bad), absurdly ineffective as a warning. All the neighbors join in the defense, and the intruder is berated in many inflections of very *platt Deutsch*. Every other point in the bird's make-up, the mild eye, the jaunty cap, the snowy plumage, the graceful lines of contour, the flowing streamers of the tail, so belie this vulgar vehemence that the observer is moved to jeer: "Aw, now, you ar'n't m*a-a*d!"

Eggs are normally three in number, spotted, after their kind, but I have fancied a tendency toward greens in the otherwise neutral ground-colors,—an incipient approximation of the normal surroundings. Nests containing five or six eggs are occasionally found, but these are undoubtedly the product of two birds. Marsh-dwellers are commonly tolerant of social breaches.

If the eggs are neither removed by flood nor addled by undue exposure to the sun, babies ensue, of such fashion as Mr. Rockwell recites:[1]

Taken in Washington
Photo by the Author

CONFLICTING CLAIMS

TWO EGGS OF THE WESTERN GREBE AND ONE OF THE FORSTER TERN OCCUPY THE NEST PROPER, WHILE A WAIF EGG OF THE AMERICAN COOT APPEARS AT THE RIGHT

[1] Robert B. Rockwell in "The Condor," Vol. XIII., Mar. 1911, p. 60.

"The young are beautiful little creatures, with a coat of silky down in soft grays and browns. While very young they somewhat resemble chicks, except for their long, sharp bills. They take to the water very readily, and their knack of self-concealment is wonderful. With nests on every side of us and a hundred screaming parents circling above our heads, an hour's hard search rewarded us with only four young, although there must have been at least a hundred young ones hiding in the area covered by our search. The young, as soon as they can 'navigate', are very animated, and show an unusual fear of an intruder. They are also quite pugnacious, babies no larger than a warbler pecking at an outstretched finger as viciously as a young hawk."

Taken in Merced County
Photo by the Author
AT THE END OF A SWOOP

Out of nesting hours the Forster Terns appear to divide their time about equally between fishing, hawking, and loafing. At fishing time the birds move about in leisurely fashion at a height of from ten to forty feet above the lake. The beak is carried point down like that of a mosquito, and the bird is evidently giving close attention to the water. Sometimes the bird hovers to make sure of the nature of its prey; but oftener, without an instant's hesitation, it plunges souse! into the water, sometimes passing clear from sight, and emerges a moment later with a wriggling minnow in its beak. When the insects are flying well, the Terns prefer to hawk. Dragon-flies and caddis-flies are favorite quarry, and in pursuit of the latter the birds will often rise to a height of several

hundred feet. But loafing is really Forsters' forte. They will stand around by the hour on fence-posts, in amiable listlessness, or they will foregather with their fellows in measureless content upon some low-lying mud-reef. Really, now, it rests the mind merely to recall these lazy Lazzaroni.

No. 287

Common Tern

A. O. U. No. 70. **Sterna hirundo** Linnæus.

Synonyms.—Wilson's Tern. Sea Swallow.

Description.—*Adult in summer:* Top of head and nape uniform deep black; back and wings pearl-gray; wing-quills dusky, more or less overlaid with silver, except on outer web of outer primary; the inner half of inner webs sharply white, but not reaching tip; rump, upper tail-coverts, and tail (basally and centrally) white; tail deeply forked, the outer pair of feathers elongated and narrowly tapering, but not, or barely, reaching the tips of closed wings; their outer webs abruptly grayish dusky, contrasting with white of inner webs; the succeeding pair also similarly marked; underparts white, strongly tinged, except on throat, crissum, and wing-linings, with pale pearl-gray or lavender-gray. Bill vermilion-red, blackening on tip; feet orange-vermilion. *Adult in winter:* Similar, but black cap imperfect, invaded by white on forehead and decreasingly on crown; underparts paler, or pure white. Bill and feet not so bright. *Young* (in August): Forehead and lores ashy gray; region about eyes, hind-crown, and nape leaden black; back, scapulars, and wings pearl-gray, each feather tipped with brownish buff and mingled subterminally with brownish dusky, forming a strong bar; upper tail-coverts and tail lighter pearl-gray, the central feathers of the latter tipped with buffy; the anterior lesser wing-coverts bluish dusky, with narrow ashy edgings; edge of wing and quills plumbeous-gray; underparts white. Length 330.2-406.4 (13.00-16.00); wing 273 (10.75); tail 127-152.4 (5.00-6.00); bill 35.7 (1.41), depth at angle 6.7 (.26); tarsus 20.3 (.80).

Recognition Marks.—Little Hawk or Crow size; black cap; pearl-gray mantle; deeply forked tail; extensive white, or pale grayish plumage; graceful flight. Known from the preceding species by outer pair of tail-feathers dark on the *outer* instead of the inner web; underparts not pure white in breeding season. Bill tipped with black as distinguished from next species.

Nesting.—Not known to breed in California. *Nests:* In colonies, on beach shingle, or in grass of low islands, lined or not, with bits of bark, grass, etc. *Eggs:* 2 or 3, rarely 4; very variable in ground-color—olive-buff, greenish or pinkish olive-buff to dark olive-buff, sharply spotted or small-blotched with black or brownish black with self-tones of bister and much undershell marking of violet-gray or pale violet-gray. Av. of 30 sets from Cobb's Island in the M. C. O. coll.: 41.9 x 30.8 (1.65 x 1.21); index 73. *Season:* June; one brood.

General Range.—Nearly cosmopolitan, but breeding only in temperate portions of Northern Hemisphere. In America breeds from Great Slave Lake, central Keewatin,

and Newfoundland south to North Carolina, western Pennsylvania, islands in Lake Erie, Manitoba, southern Saskatchewan, and Alberta. Not known to breed anywhere west of the Rocky Mountains. Migrates abundantly in the interior east of the Rockies and along the Atlantic seaboard; less commonly through Arizona and on the Pacific Coast from British Columbia southward to Venezuela and Brazil.

Occurrence in California.—Not common coastwise; sporadically (or briefly) abundant.

Authorities.—**Heermann** (*Sterna hirundo*), Rep. Pac. R. R. Surv., vol. x., 1859, p. 75 (Sacramento Valley); *Dwight*, Auk, vol. xviii., 1901, p. 54 (plumage and molt); *Beck*, Proc. Calif. Acad. Sci., ser. 4, vol. iii., 1910, p. 64 (off Monterey; migr.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 16 (occurrence in s. Calif.).

WHAT a piece of work is a Tern! how gentle in instinct! how untrammeled in discursion! in form and moving how elegant and admirable! in action how like the swallow! in innocence how like the dove! the beauty of the air! the paragon of sea-birds!

Terns are the animating spirits of summer seas. Not bluff and sturdy like the Gulls, they have little place in winter's storm, but when the sun has re-established his dominion and only Zephyr pricks the caracoling waves, then the blue-gray daintiness of the Tern is as necessary to the scene as are the criss-cross mirrors of the amethystine sea. We hail with delight the appearance in the offing of a busy, happy company of the white-winged birds, weaving in the air by their incessant plyings a close-meshed fisher-net, wherein many a luckless minnow is entangled. Soon a lone straggler from out the company drifts shoreward, parting the air with graceful wing, now pausing critically over a suspected fish, like some pensive mosquito with his beak down-turned; now dropping with a splash beneath the wave, or making a nimble catch at the surface without wetting his plumage. Ever and anon the muffled undertone of the waves is pierced by a weird and half-petulant cry, *te-er te-erve*, childish, plaintive, yet somehow thrilling and exultant. And as the bird passes to rejoin his companions, you find he has borne away your fancy evermore to hover where blue skies laugh at blue waters, and innumerable wavelets trifle with innumerable sunbeams.

The occurrence of the Common Tern in California is still somewhat shrouded in mystery. The older authorities knew nothing at all about it. The first record appears to be that by Bishop,[1] of three specimens taken by H. W. Marsden at Pacific Beach, Sept. 8, 12 and 15, 1904. Yet Rollo H. Beck,[2] writing in 1910, finds it of common occurrence at Monterey, and records 109 California specimens in the collection of the Academy of Science. Willett[3] says it is probably a regular migrant

[1] Condor, Vol. VII., Sept. 1905, p. 141.
[2] Proc. Calif. Acad. Sci., 4th series, Vol. III., p. 64, Sept. 17, 1910.
[3] Pac. Coast Avifauna, No. 7, p. 16.

along our coast, in limited numbers, and in this my experience concurs. Our uncertainty is heightened by the fact that no nesting colony of the species has ever been reported from the Pacific Slope, not even from Alaska; and it would appear probable that birds nesting in the Canadian interior, as at Great Slave Lake, are finding their way to our coast in increasing numbers. There are spring as well as fall records for California, but no breeding nor winter records.

No. 288

Arctic Tern

A. O. U. No. 71. **Sterna paradisæa** Brünnich.

Synonyms.—Paradise Tern. Crimson-billed Tern. Portland Tern.

Description.—*Adult in breeding plumage:* Wings, tail, and black of head much as in preceding; mantle *deep* pearl-gray; lower rump and upper tail-coverts pure white; underparts deep pearl-gray tinged with lavender, clearing to white only on lining of wings, lower tail-coverts, and on sides of head adjacent to black cap. Bill bright carmine, sometimes faintly tipped with blackish; feet rich carmine. *Adult in winter plumage:* Similar, but underparts white; forehead, fore-crown, and lores, anteriorly, white; crown mixed black and white, and remaining black of cap a little broken. Bill *black* or with mere traces of red. *Immature:* Similar to adult in winter and much as in preceding species, but dusky crescentic subterminal markings of feathers on back, scapulars, etc., heavier and darker, their terminal skirtings ashy rather than buffy; the outer webs of two outer pairs of tail-feathers darker in tone, dusky rather than deep pearl-gray; the lores white as to ground, but sharply and finely streaked with dusky. Bill redder in tone basally. Length of adult: 355.6-431.8 (14.00-17.00); wing 254-273.1 (10.00-10.75); tail 165.1-215.9 (6.50-8.50); forked 101.6-127 (4.00-5.00); bill 30.5 (1.20); depth at angle 5.9 (.23); tarsus 15.6 (.61).

Recognition Marks.—Size of preceding; darker; tail more deeply forked, its outer feathers gracefully streaming; bill pure carmine in spring, red to black in fall migrations; smaller and slenderer than that of *S. hirundo.*

Nesting.—Does not breed in California. *Nest* and *Eggs* much as in *S. hirundo,* but coloration of eggs averaging darker, deep olive-buff. Av. size 40.6 x 27.9 (1.60 x 1.10).

General Range.—Coasts of both hemispheres during migrations, summering in the Northern Hemisphere, chiefly in the Arctic regions, but breeding, in North America, from Maine (formerly Massachusetts) and northern British Columbia northward; wintering chiefly in Antarctica, but also along both coasts of South America.

Occurrence in California.—Fairly common migrant coastwise or well off shore—observed only in the autumn.

Authorities.—Lawrence (*Sterna pikei*), Ann. Lyc. Nat. Hist. N. Y., vol. vi., 1853, p. 3 (Monterey); *Beck,* Proc. Calif. Acad. Sci., ser. 4, vol. iii., 1910, p. 64 (off Monterey; migr.); *Pierce,* Condor, vol. xxi., 1919, p. 125 (Laguna Beach); *C. W. Townsend,* in Bent, U. S. Nat. Mus., Bull. no. 113, 1921, p. 249 (life hist.; desc. and photos of nest and eggs, etc.).

The Arctic Tern

THE ARCTIC Tern is truly named, for it enjoys a circumpolar distribution, and it breeds as far north as land is to be found, even to Grinnell and Peary Lands, in Latitude 82°. Because of favoring conditions, or perhaps because of ancient habit, established before the frigid zone was available as a nesting site, some few of the species still linger along the coast of Maine; and they have nested off the coast of Massachusetts within historic times. On the Pacific side, where milder temperatures prevail, the Arctic Tern does not breed further south than Glacier Bay and some of the Aleutian Islands. In migration, therefore, these birds are sure to occur regularly off our coasts, but our records are meager, and it is not certain that they may be expected with any regularity inshore. It is significant, however, that all records of coastal movement cease with Long Island on the Atlantic side, and with southern California on the Pacific.

The winter range of the Arctic Tern was for years shrouded in mystery. Finally, in 1904, these birds were discovered by the "Scotia" expedition to be present in immense numbers on the Weddell Sea, in Latitude 72° to 74° South. This particular waste of Antarctic waters is, therefore, in all probability, the focal point of the entire species; and in reaching this spot the birds must follow fly-lines across the open ocean, for there are few South American records of its occurrence. How romantic and how daring this annual flight from pole to pole (approximately speaking) really is, only the imagination may picture. At any rate, we know that *Sterna paradisæa* is the holder of the world's long distance record for migratory flight.

Of the further implications of this movement Mr. Wells W. Cooke[1] says: "The Arctic Terns arrive in the far north about June 15 and leave about August 25, thus staying 14 weeks at the nesting site. They probably spend a few weeks longer in the winter than in the summer home, and this would leave them scarcely 20 weeks for the round trip of 22,000 miles. Not less than 150 miles in a straight line must be their daily task, and this is undoubtedly multiplied several times by their zigzag twistings and turnings in pursuit of food.

"The Arctic Tern has more hours of daylight and sunlight than any other animal upon the globe. At the most northern nesting site the midnight sun has already appeared before the birds' arrival, and it never sets during their entire stay at the breeding grounds. During two months of their sojourn in the Antarctic the birds do not see a sunset; and for the rest of the time the sun dips only a little way below the horizon and broad daylight is continuous. The birds have, therefore, 24 hours of daylight for at least eight months in the year, and during the other four months have considerably more daylight than darkness."

[1] Bird Migration, Bull. No. 185, U. S. Dept. of Agriculture, 1915, pp. 9 and 10.

LEAST TERN

No. 289

Brown's Least Tern

A. O. U. No. 74. **Sternula antillarum browni** (Mearns).

Description.—*Adult in summer:* A glossy black cap covering crown and nape broadly, pushed back from forehead by frontal crescent of pure white, whose base touches the bill and whose horns reach over the eyes, but do not cut off the black of lores from that of crown; remaining upperparts pearl-gray slightly silvered on wing-quills, except three outer primaries which are chiefly blackish, with abrupt white on the inner half of the inner web; underparts grayish white. Bill yellow, usually tipped with black; feet yellow with black nails. *Adult in winter:* Lores white; area of cap restricted to sides of head and to nape; crown with black shaft lines; upperparts darker gray with reduction of silver in wing-quills, and encroachment of white on cervix. Bill blackish; feet duller yellow. *Immature:* Like adult in winter, but black and white of head not so clearly defined, and pearl-gray of upperparts varied by lighter tips; traces of dusky on tail. *Young in August:* Lores, forehead, and crown brownish buffy; a dusky border through eye and around on nape; feathers of back and wing-coverts dusky in lunate or horse-shoe-shaped or catenate markings, varied by buffy centrally or on edges; primary coverts dusky with buffy edgings, and quills silvery dusky; tail slightly emarginate, mottled buffy and dusky centrally with white edgings. Bill brownish black, paling basally. Length of adult about 228.6 (9.00); wing 167.8 (6.61); tail 88.9 (3.50); its fork 44.5 (1.75); bill 27 (1.06); depth at angle 5.4 (.21); tarsus 15.4 (.61).

Recognition Marks.—Sparrow size as to body; of course appearing much larger, but easily distinguishable as the smallest of the terns; black cap; yellow bill; forked tail.

Nesting.—*Nests* in colonies—mere hollows in sand or beach shingle. *Eggs:* 2 or 3; pale olive-buff, spotted rather finely and sparingly with dark chocolate and violet-gray. Av. size 30.5 x 22.35 (1.20 x .88); index 73.3. *Season:* June–July (May 20–Aug. 12); one brood.

Range of *Sternula antillarum.*—Both coasts of the United States and the Mississippi Valley south, at least, to Venezuela.

Range of *S. a. browni.*—Pacific Coast of the Americas. Breeds north to Monterey Bay, California, and winters south at least to Guatemala and probably Peru.

Distribution in California.—Breeds in colonies on sand beaches north to Monterey Bay. There are eight or ten regular breeding stations, and varying conditions of back-water invite occasional nestings. Arrives April–June; leaves in Sept. Latest record of occurrence, Nov. 14, 1914, Santa Barbara.

Authorities.—**Coues** (*Sterna antillarum*), Proc. Acad. Nat. Sci. Phila., 1866, p. 100 (coast of Calif.); *McCormick*, Bull. Cooper Orn. Club, vol. 1, 1899, p. 49 (Los Angeles Co., breeding habits); *McAtee*, U. S. Dept. Agric., Farmers' Bull. 497, 1912, p. 24 (food); *Mearns*, Proc. Biol. Soc. Wash., vol. xxix., 1916, p. 71 (*Sterna antillarum browni*, new subsp.; Pacific Ocean, San Diego Co., near Mexican boundary).

THE DOVE is often held up to us as the symbol of architectural indifference or of slovenly home-making, but the palm really belongs to the Least Tern. House-building for the Tern has no other meaning or

Taken at Sandyland *Photo by the Author*

STANDING HER GROUND

instrument than a pressure of the breast upon the sand. Home has no slightest connotation for her beyond that of locality, the place, perforce, where earth and sky must meet. For herself she would fainest linger ever in the air, descending only momentarily to seize her sustenance from the billow. But Nature in her wisdom has not seen fit to perfect a method by which such airy fairy creatures may perpetuate their kind, save by vulgar contact with the earth. And if it were not so, we should learn no more about them than we know of wandering comets. These Least Terns shall form no exception to the living

Taken in Monterey County *Photo by the Author*

LESS THAN THE LEAST

IN OTHER WORDS, LITTLE LEAST TERNS

line and they shall have no respite from the common lot. They must cease their tropical flutterings, their happy wanderings up and down the airy aisles which parallel a thousandfold the illimitable shores. Come, birdies, sea sprites, fog-fays, wisps of sunlit spray,—howsoe'er ye call yourselves—get you to your knitting! Reproduce your sylphian, frivolous kind! Where? Oh, any stretch of sun-warmed sand will do, fronting the ocean. Oh, of course, the ocean. But better one where humans will not come, nor dogs—those boisterous marplots! Better, too, if you have a stretch of quiet waters to the rear, a lagoon or river or imprisoned pool, where fish will never fail you for the babies.

Taken in Monterey County *Photo by the Author*

A TERN A-WING

Truth to tell, the shores of California no longer offer safe asylum to these tender children of the tropics. They still nest with us, or try to, but the odds are against them. The playground of humanity, as we boast our southern shores to be, is no fit place for birds like these. The beaches belong to us. The sand is ours. We require it for the erection of cottages, casinos, bath-houses, and other important things—and to exercise our dogs, withal. The mermaids are gone, the Tritons are fled. Better that these birds go after them.

Taken in Monterey County *Photo by the Author*

TERN COUNTRY

In the early stage of egg-laying the birds are very easily disturbed, rising in a cloud at the distant approach of danger, and scattering in a fairy maelstrom of protest. As incubation advances only the nearer pairs attend upon the danger, so that the intruder moves about under a shifting halo of ex-

cited birds. The pair most nearly threatened does not hesitate to dive and shriek, after the fashion of the falcon, while all about us is a bewildering chorus of expletives. *Uik, uik, uik,* squeals the exasperated bird in accents which would do credit to a baby porker caught in the fence. *Uik, uik,* grunts a sympathetic neighbor, in spite of a slender minnow dangling from her beak; while the less disturbed express themselves in a more musical tone, *kit'oo, kit'oo* or *jik, jik, kit'oo.*

As often as we are quiet, the gentle Terns begin to settle. But as they do so, they oftenest remain for a moment or so with wings daintily uplifted. This may be partly for readiness to instant flight, or partly as a decoy signal, for they sometimes make a little run with the wings up, and then look about over the shoulder to see if we are following. There is no law or order whatever about a choice of nesting places. One may be marked by a stick or a clam-shell hard by; another will be on the bare sand a rod from any other object. Now and then a bit of scattered drift may attract attention, and occasionally a brooding Snowy Plover, already established, will act as a sort of land-mark for the homesteading tern. Once I found two eggs of the tern quartered with three of the plover. The tern I knew to be the offender; and I think she acted from no more sinister motive than that of using a recommended site.

Taken near Santa Barbara *Photo by the Author*

FACE TO FACE

TAKEN FROM BLIND AT RANGE OF 2½ FEET

Because of incessant disturbance to which the birds are subjected, incubation will

Taken at Sandyland

THREE TURNS WITH THE GRAFLEX

Photo by the Author

(Left) Taken in Monterey County
(Right) Taken in Orange County

Photo by the Author
Photo by Wright M. Pierce

AN OÖLOGICAL DREAM

be at any stage. Fresh eggs in twos, or rarely in threes, vie in interest with toddling chicks, who freeze upon the instant of approach. If it is a windy beach, like that of Monterey, the baby's eyes are filled with sand, for he executes his part unblinking. Too much sun will not do, either; and the infant, denied his mother's wing, must either find shelter under a leaf or a bit of drift on the higher beach, or perish.

Under ideal conditions the Least Tern may possibly raise two broods in a season. Ordinarily the range assigned for fresh eggs, May 20th to August 1st, must rather represent successive attempts, thwarted at first by wind or tide or depredation.

The early history of the Least Tern in California appears to be lost in obscurity. Whether or not it was really abundant in the earlier days, we do not know. It suffered, of course, near extinction in the days of the plume-hunters. Since those days there has been a notable recovery, and it may be that through comparative protection from gun-fire, and especially from the definite protection extended to it by the Bolsa Chica Gun Club on their properties, the species will really increase on the whole, in spite of disturbed beach conditions elsewhere. Mr. W. Lee Chambers, writing from Santa Monica in 1908,[1] reported the birds as decreasing sharply at Ballona Beach and at Redondo Beach, but increasing at Bolsa and Newport beaches. Colonies have been reported from the following localities: Moss Landing (Monterey Bay), Carpinteria (intermittent), Hueneme, Playa Del Rey, Redondo, Sunset Beach, Newport Beach, and Pacific Beach (San Diego County).

Taken at Sandyland *Photo by the Author*

THE SPLASH

THE BIRD IS, OF COURSE, EMERGING FROM A PLUNGE

[1] Condor, Vol. X., p. 237.

No. 290

Black Tern

A. O. U. No. 77. **Chlidonias nigra surinamensis** (Gmelin).

Description.—*Adult in summer:* Head and neck all around, glossy black, shading into sooty black of underparts; the crissum white and the edges and lining of wings white or pale pearl-gray; upperparts plumbeous, darker on upper back, where it blends through slate with black cervix; bend of wing white; primaries inclined to silvery on exposed webs after the first, the inner webs, however, dusky, lightening on the inner half, and the shafts white; tail slightly forked. Bill and feet black. *Adult in winter:* Lighter, the black replaced by white, save on back of head, orbits, and auriculars, where obscurely persistent; upperparts deep pearl-gray. *Immature:* Like adult in winter, but upperparts more or less tinged and tipped with brownish, and sides washed with grayish. Length 228.6-260.4 (9.00-10.25); wing 203.2-215.9 (8.00-8.50); tail 76.2 (3.00); bill 26.4 (1.04); tarsus 17 (.67).

Recognition Marks.—Towhee to Robin size, but appearing about Killdeer size; sooty black and plumbeous coloration distinctive in breeding plumage; *dark* pearl-gray of upperparts with *black* bill (and feet), with small size sufficiently distinctive at other seasons.

Nesting.—*Nests* in loose colony fashion, each a truncated cone of twisted grasses or bent sedged, placed on ground in marshes or on drifting reeds, old grebe nests, or anything which offers support on the surface of the water. *Eggs:* 3 (4 of record); olive-buff to dark olive-buff, or cinnamon-buff to clay-color and tawny olive, heavily spotted and wreathed, or strikingly blotched, or even rough-banded, with black or reddish black (dark bister to dark vandyke brown). Av. of 15 sets in M. C. O. coll.: 33.5 x 23.9 (1.32 x .94); index 71. *Season:* c. June 1st; one brood.

Range of *Chlidonias nigra.*—Europe and temperate North America, south in winter to Africa (both coasts) and South America.

Range of *C. n. surinamensis.*—Breeds in interior North America from southwestern British Columbia, Mackenzie (Great Slave Lake), and *southern* Keewatin, southeastward to eastern end of Lake Ontario, thence southwestward through northern Ohio, Kansas, etc., to southern California. Of general occurrence near water during migrations, but especially coastwise, south through Mexico and Central America to the Guianas, Peru and Chile.

Distribution in California.—Breeds commonly at suitable places in the interior, both east and west of the Sierras, and as far south as Buena Vista Lake (Linton) and possibly Lake Elsinore (Heller). Of rare occurrence coastwise above Point Conception, but abundant during migrations in the Santa Barbara sector.

Authorities.—**Cooper** (*Hydrochelida plumbea*), Proc. Calif. Acad. Sci., vol. ii., 1861, p. 122 (headwaters of Mojave River); *McAtee*, U. S. Dept. Agric., Farmers' Bull. 497, 1912, p. 24 (food); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 14 (San Joaquin Valley; breeding habits).

IRRIGATION has caused the desert of the West to blossom as the rose. If that were all, we could be thankful for roses—and *such* roses! California roses, of course! But when to roses are added such practical

blessings as alfalfa and barley and potatoes, not to mention strawberries and oranges and avocadoes, we are never done praising the beneficence of nature, assisted by the measured art of the engineer. But irrigation may be lavish as well as stinted, and it is for the by-products of flooded fields and rejuvenated morasses that the ornithologist finds himself most thankful. And nature herself has been the great engineer in California. Kern, Buena Vista, Tulare, Tahoe, Goose, Eagle, Honey, Tule, and Klamath, these are the names not of "projects," but of natural catch-basins whose annual levels are determined by the largess of the snows, and whose overflowing borders, therefore, offer a boundless hospitality to the birds.

The Black Tern is the familiar spirit of all fresh-water swamps in California north of the Tehachipe. Wherever water spreads itself not too deeply to encourage vegetable growth, whether of sedge or typha or tule, this restless, petulant, graceful water-sprite harries the face of nature, pursues insects, chides intruders, builds adventurous rafts for the use of his offspring, and otherwise conducts his Chlidonian business.

Taken in Merced County BREEDING HAUNT OF THE BLACK TERN *Photo by the Author*

Taken near Los Banos *Photo by the Author*

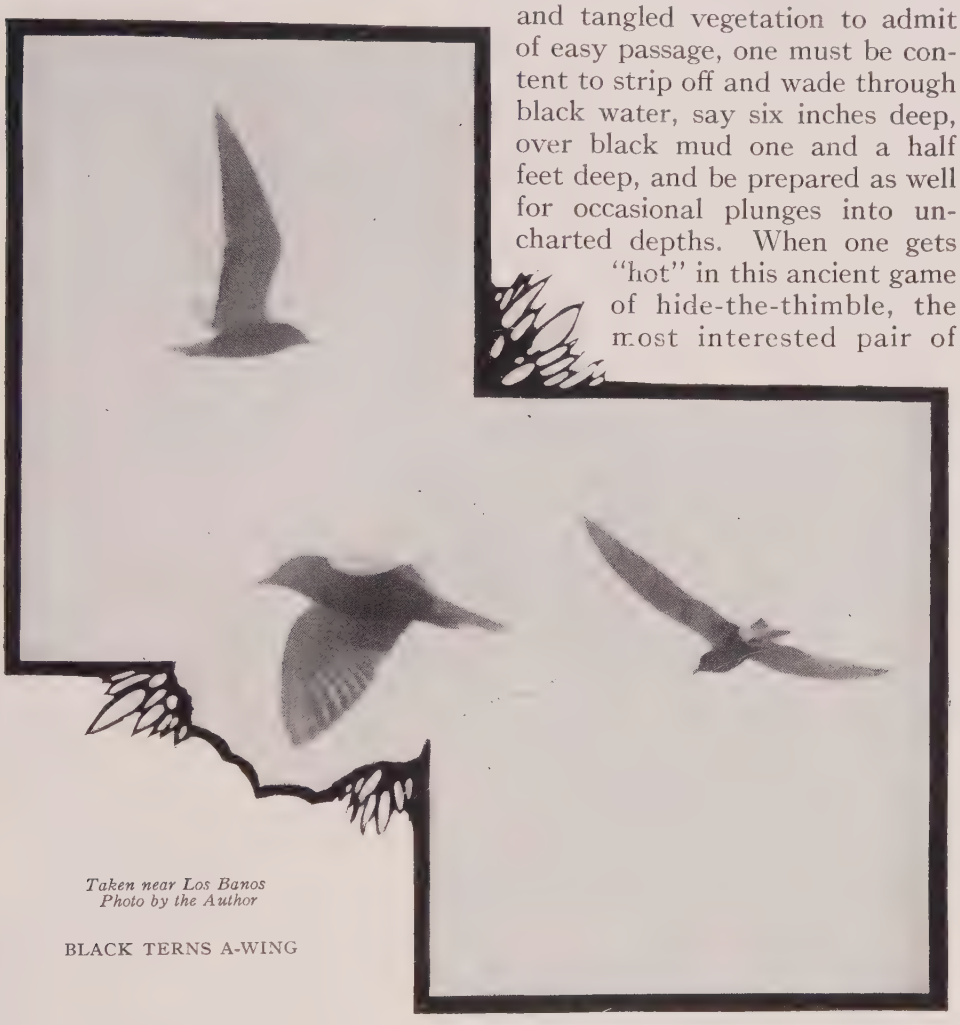
A CONSCIENTIOUS OBJECTOR

During the migrations the birds may show themselves on southern ponds, at Nigger Slough or Elsinore, or even at the beaches; but little time is spent en route, and the birds are anxious to get to the home grounds where they may at least *talk* business. If the water-levels are right, they will pitch into May's serious task as early as the 10th instant; but if, as is more likely, it is still too chilly or too dry, they will harry the Grebes, or the muskrats, or vent their displeasure on a prowling coyote. Nesting is at its height by the second week in June, but high water or destructive winds foil many early efforts and not half the babies of the season are brought off before July. Late July and early August are spent in leisurely fashion, either in loitering about the accustomed swamps or in the exploration of out-of-the-way lakes not suitable for breeding purposes. The return movement sets in by the middle of August, at which time the higher altitudes are cleared; but migrants are passing at the coast till mid-September.

The food of the Black Tern consists very largely of insects. These are obtained a-wing, and in securing them the bird exhibits great dexterity,—now towering to a lofty height, with a single stroke against the wind, to make connections with a drifting moth; now following a bewildering zigzag through the reed-tops in pursuit of the agile dragon-fly. In the fall I have seen them busily engaged over beds of pond-weed. On these occasions they feed with a peculiar dabbing motion, by which they cull some tidbit from the surface of the weed-strewn water, and regain a higher level after each stroke without wetting the wings. Undoubtedly, also, they glean the larvæ of various water-insects from the stalks of ascending vegetation; and they use to a lesser degree the plunge-and-strike methods of the other terns.

In searching for the nests of the Black Tern, one must penetrate the

oozy recesses of an undisturbed swamp, preferably in a flat-boat. Here in some secluded stretch the birds will hover about the intruder, fretting and screaming incessantly. If the water becomes too thick with mud and tangled vegetation to admit of easy passage, one must be content to strip off and wade through black water, say six inches deep, over black mud one and a half feet deep, and be prepared as well for occasional plunges into uncharted depths. When one gets "hot" in this ancient game of hide-the-thimble, the most interested pair of



Taken near Los Banos
Photo by the Author

BLACK TERNS A-WING

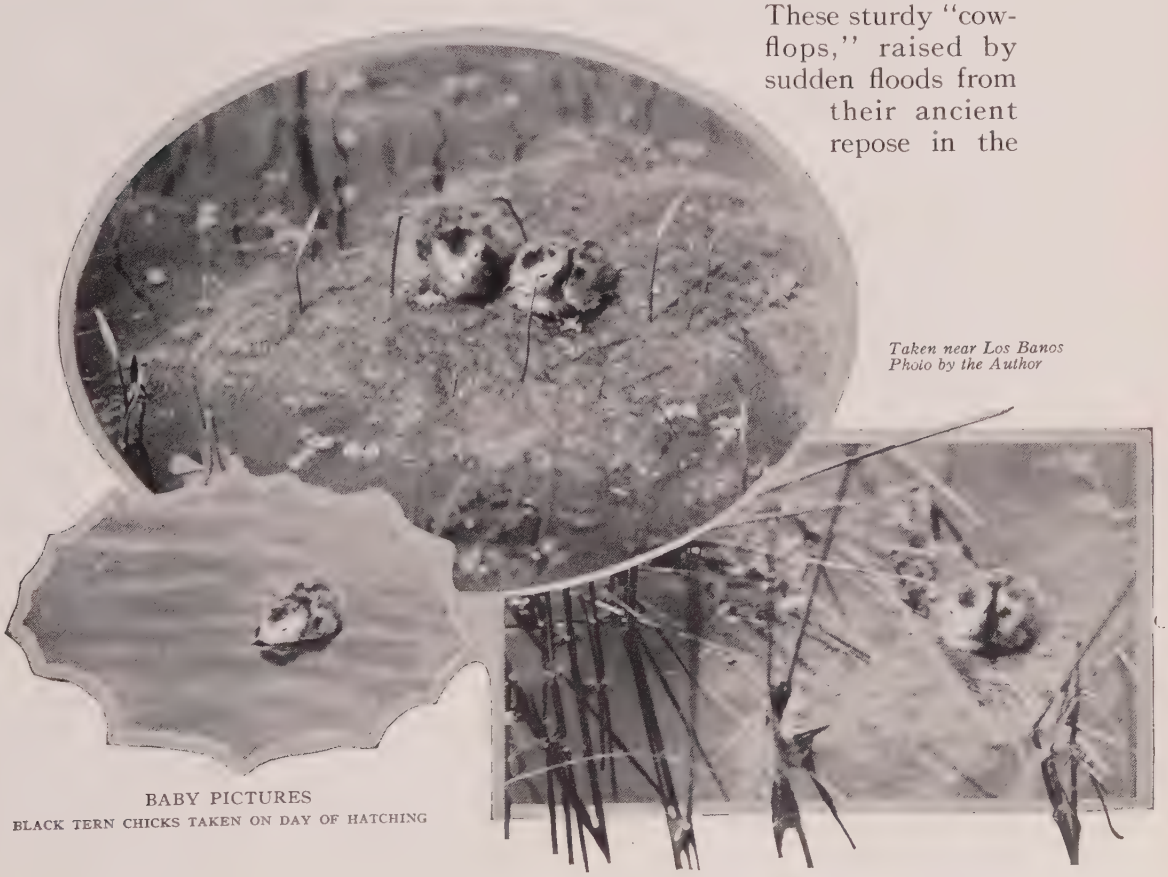
birds will single themselves out from the hovering throng and prepare for defense. Unless their advances are early discouraged, the boldness of these two will increase until they actually strike the intruder on the head, to say nothing of frequent salutations with flying shearn. At the same time the characteristic cry, *krik, krik*—lighter in character than that of the Forster Tern, but still guttural and harsh—is flatted by anger into *kra-ack, kra-ack.*

Taken in Washington *Photo by the Author*

A FLOATING NEST OF THE BLACK TERN

The nests are placed variously in the swamp, sometimes on a little raft of floating vegetation which the bird has brought together, sometimes on a truncated cone of fresh-cut herbage and twisted grasses resting upon the solid earth, but oftenest upon the ample expanse of some grebe's nest, new or old. The little tyrants have no hesitation in appropriating a grebe's nest of fresh construction, even though the rightful owner has already deposited eggs. The spitfires have the advantage in being able to strike from above, and it is to be feared they sometimes resort to mob tactics in case of serious opposition. The pale olive-brown eggs, heavily spotted and blotched with blackish brown, harmonize so perfectly with their surroundings of decaying and mud-spattered vegetation as almost to elude the sight, even after being once discovered.

As a special instance of nesting in the cattle country, one cannot forbear to mention the frequency with which these birds are beguiled by the attraction of floating cakes of cow-dung for use as nesting sites. These sturdy "cow-flops," raised by sudden floods from their ancient repose in the



Taken near Los Banos
Photo by the Author

BABY PICTURES
BLACK TERN CHICKS TAKEN ON DAY OF HATCHING

erstwhile pasture, offer all the requisites of stability, lightness, and convenient size which the birds admire—for a season. But the disintegrating power of the circumambient water is invariably more rapid in action than are the processes of incubation, and the end of that lowly cradle is inevitably tragic. But the birds will not learn, and the houses erected upon these deceitful foundations are as numerous as ever the following year.

Taken in Washington *Photo by the Author*

NEST AND EGGS OF BLACK TERN

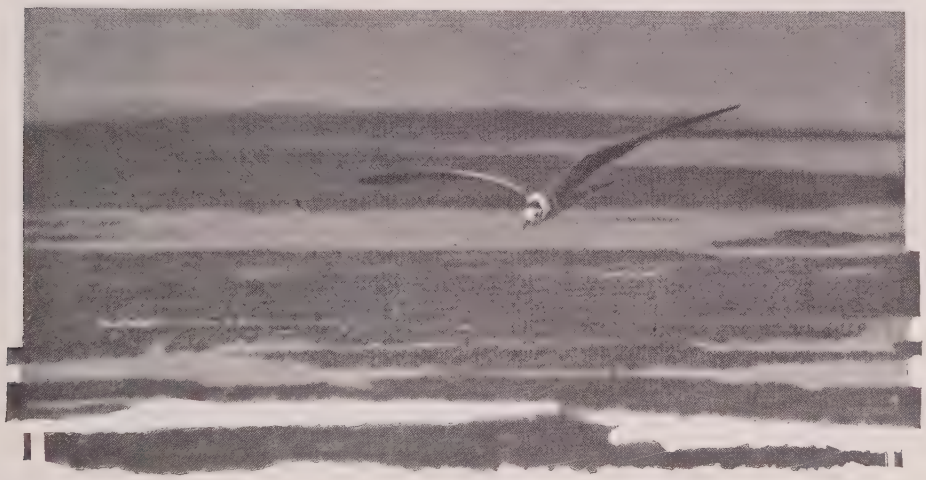
THE EGGS ARE PLACED IN A USURPED NEST OF THE WESTERN GREBE'S

Better taste was shown by a pair of these Terns which found a floating board-end, and proceeded to anchor it forthwith by sedge-stems broken down from either side. This with a turret of plaited stems made a bully house-boat, a cradle fitter than that of Moses.

The chicks whose portraits appear on Page 1465 were brothers (?) picked up in a Los Baños swamp. They were industriously clambering over the moss when found, but they soon endeared themselves to our photographic heart by exhibiting a willingness to "stay put." One, when placed upon the water, swam off vigorously until it encountered a small island of scum, whereupon it scrambled aboard and proceeded to settle

down for a snooze. The other baby "froze" promptly upon the surface of the water, where it rode as lightly as a cork, and allowed the breeze to blow it about as it listed.

An interesting thing about the downy plumage is its light color, harking back, as it does, to the ancestral type of a lighter bird. The general color of the chick is a dull golden fulvous, variegated by black; but the face, including a considerable circumocular area, is pure white. The feet and tarsi are pale dusky and the nails are black, while the bill is of a dull pinkish shade with a black tip. Needless to say the parent birds are very much interested in these phylogenetic notations, and they invite us to desist in language whose vigor admonishes against translation.



Taken near Santa Barbara *Photo by the Author*

BLACK TERN IN AUTUMNAL PLUMAGE

No. 291

Cassin's Auklet

A. O. U. No. 16. **Ptychoramphus aleuticus** (Pallas).

Synonyms.—Aleutian Auklet. Cassin's Auk.

Description.—*Adult in breeding season:* Above sooty plumbeous-black, changing to sooty plumbeous-gray on throat, breast, and sides, bluish tinge clearest on rump and scapulars, wings and tail brownish dusky, paling on edges and exposed portions; lining of wing partly white; a white spot over eye a little forward, and a touch on lower

lid posteriorly; remaining underparts pure white. Bill (drying) black, changing to yellow on base of lower mandible; iris greenish blue; feet chiefly black, nails black. *The fall moult* renews and strengthens the plumbeous tone throughout, but the throat is paler, sometimes definitely white. *Immature:* Similar to adult in autumn but wings blacker. Feet and tarsi yellow before, black behind. *Downy young:* Chiefly brownish dusky; white pattern of adult indicated by lighter gray on underparts; sides of head and throat chiefly naked, orange-yellow. Bill and feet as in immature. Length of adult: 203.2-241.3 (8.00-9.50); wing 121.9 (4.80); bill 19.1 (.75); depth at base 9.9 (.39); tarsus 25.4 (1.00).

Recognition Marks.—Robin size; chunky appearance; stout bill; blackish and white plumage; absence of appendages or special adornments in itself nearly distinctive, save as regards the slenderer and smaller-billed Marbled Murrelet.

Nesting.—Single *egg*, white or pale greenish white, unmarked; placed at end of burrow three or four feet in length, or in crevice of rock. Av. size 47 x 34 (1.85 x 1.34). *Season:* April–June; one brood.

General Range.—Pacific Coast and islands of North America from the Aleutian Islands to the coast of northern Lower California, breeding throughout its range, or perhaps retiring slightly in winter (at least to Cerros and Natividad Islands).

Distribution in California.—Common resident on the ocean, and breeding in suitable localities, chiefly the Farallons and the smaller islets along the entire coast.

Authorities.—Gambel (*Mergulus cassinii*), Proc. Acad. Nat. Sci. Phila., vol. ii., 1845, p. 266 (coast of Calif.); *Stejneger*, U. S. Nat. Mus., Bull. no. 29, 1885, p. 27, footnote (molt of bill); *Dawson*, Condor, vol. xiii., 1911, p. 173 (Farallon Ids.; habits, etc.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 20 (s. Calif. ids.); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 110 (life hist.; desc. and photos of nests, etc.).

THE PETREL population of the islands lying off the coast of California is not large; and Howell is probably correct in his surmise[1] that this species outnumbers all our other small pelagic birds combined. The case was quite otherwise on the coast of Washington, where in 1907 we had just discovered the presence of Cassin Auklets on a rocky islet which was tenanted by some 40,000 Beal Petrels.

Determined to get a line on the night-life of this interesting colony, we returned to the mainland for blankets and other supplies and had the Indians land us by canoe at nightfall. The distant lights of the Indian village and the myriad stars entertain us, but the real performance does not begin till well on toward ten o'clock. Now for the orchestra. "*Petteretteretterell, etteretteretterell*"— it is the tap, tap of the Petrel conductor calling the island to attention. Soon ghostly forms steal about in the gathering gloom. Voice answers voice as each moment flies. The flitting shadows become a throng, and the chorus a tumult. But in the grand melange there is a new note. A quaint, burring croak wells up from the ground, elfish, gruesome, portentous. The Cassin Auklets are waking up. Heard alone, the Auklet chorus reminds one of a frog-pond in full

[1] A. B. Howell, Pac. Coast Avifauna, No. 12, (1917), p. 21.

cry. As one gives attention to an individual performer, however, and seeks to locate him in his burrow, the mystery and strangeness of it grows. The vocalist is complaining bitterly of we know not what wrongs. We must be within three feet of the noise as we stoop at the burrow's mouth; the volume of it is ear-filling; yet its source seems furlongs off. Now it is like the squealing of a pig in a distant slaughter pen. We lift our heads

Taken in Washington *Photo by the Author*

CASSIN AUKLET, ADULT AND YOUNG

and the stock yards are reeling with the prayers and cries of a thousand victims. And now the complaint falls into a cadence, "*Let meee out, let meee out, let me out.*" A thousand dolorous voices take up the chorus. The uproar gets upon the nerves. Is this a bird lunatic asylum? Have we stumbled upon an avian mad-house here in the lone Pacific? And are these inmates appealing to the moon, their absent mistress?

Nay, rather, it is the eternal infant. It is the voice of elemental hunger we hear, and we are powerless to answer. Oh, the unwearying importunity of the hungry child! Earth nor heaven shall forget him while

Photo by the Author

THE LANDING PLACE: SOUTHEAST FARALLON ISLAND

he draws the breath of want. Listen, ocean! and hearken, ye still spaces! "*Let me eat, let me eat, let me eat!*" Anxious fathers and distraught mothers hurry to and fro under the lash of the myriad hunger cry. There are some sounds of satisfaction here and there, but they are drowned in the universal shout. Hour after hour goes by and still the fury of demand increases. Fast and faster whirls the ministering host. High and higher rolls the tumult—until tired nature (human nature) asserts herself and we drop off to sleep—to awaken only when the sun is an hour high and the silence of the island is unbroken save by a few quavering gulls.

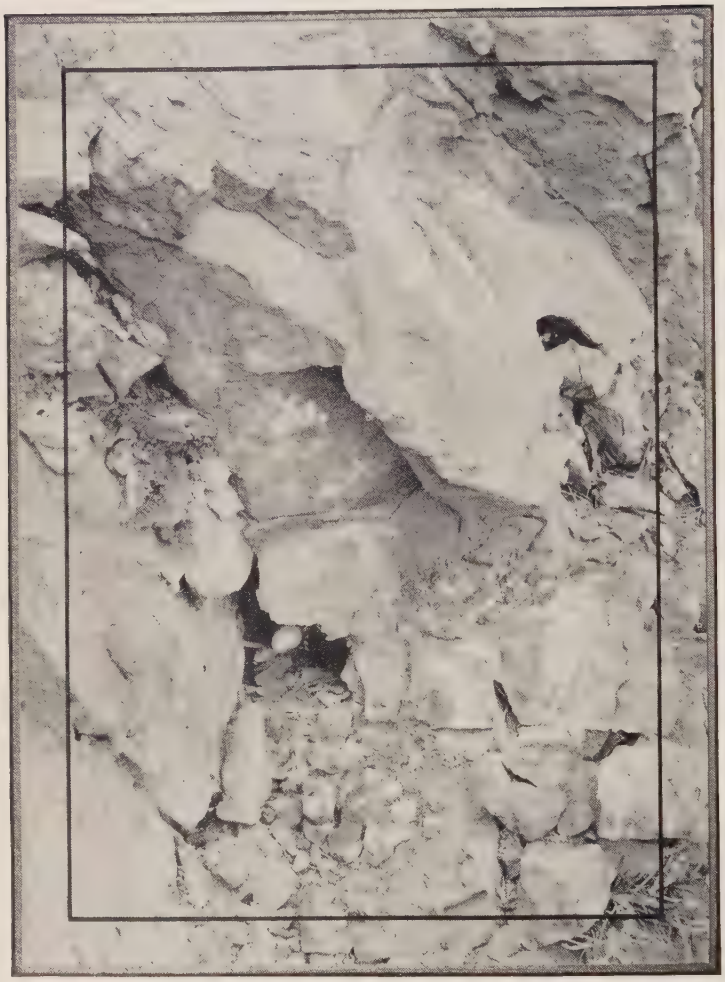
The midnight pace is still more furious on the Farallon Islands. An expert might know, indeed, from certain signs at midday—a foot-worn burrow-mouth, or a whitewashed rock-slide—that Cassin Auklets were about, but the day-life of the island is untroubled by the thought of what lies underneath entombed in silence. But sally forth at midnight, armed only with a lantern, and you shall see what a teeming Nineveh is there. Go where he will, one hears a roar of wings and sees a multitude of twinkling forms; and, moreover, one is kept very busy avoiding the onslaught of the reckless birds, who, if not moved to fly toward the light, are stirred by its presence to lawless activity which may result in any sort of collision. It is no uncommon experience to be struck in the face by one of these hapless fowls, and that with a force which leaves bruises and scars.

The Cassin Auklet seems incapable of controlling the force of its flight, and the wonder is that they are not every one of them dashed in

pieces in a single night in their effort to locate their proper burrows. In this respect they remind one of nothing else so much as beetles or moths which come hurtling into the region of candle light, and without an instant's pause for presumed necessary recovery, begin an animated search for an imaginary exit. This crash-and-crawl method seemed not exceptional but characteristic. It was especially noticeable in the paved area just outside our workroom doors. (We occupied an outbuilding of the light-keepers' quarters.) Crash! announced the arrival of another food-laden wanderer from the unknown. The impact against the building invariably stunned the bird so that it fell to the ground, but immediately it began a frantic search, and as likely as not, before we could lay hands on it, it disappeared under a crack in the doorstep. "*Right here,*" from a certain spot under the floor announced the home-coming, and so enthusiastic would be the reception accorded the tipsy reveler that for a time all human conversation above had to be suspended.

The Cassin Auklets are *everywhere* on the Southeast Farallon. Burrows, of course, predominate, but there is not a cranny, nook, cleft, crack,

Taken on the Southeast Farallon AN ANCIENT NESTING GROUND *Photo by the Author*



Taken on Los Coronados Islands, L. C. *Photo by Donald R. Dickey*

EGG OF CASSIN AUKLET, IN SITU

aperture, retreat, niche, cave, receptacle, or hideyhole, from the water's edge to the summit of the lighttower which is not likely to harbor this ubiquitous bird. The interstices of all stone walls harbor them by the score. Every cavity not definitely occupied by puffin, petrel, or rabbit, is tenanted by an auklet, and in some cases quarters are shared. If one's imagination is not sufficiently stimulated by regular occurrences, it will be jogged by appearances in unexpected places,—an old nest of Rock Wren or Pigeon Guillemot, an inner recess of a murre cave, an abandoned spur of a puffin burrow, an overturned wheelbarrow, or a neglected board lying on the ground, driftwood on the beach—anything affording the slightest prospect of protection or cover. A pile of coal, sacked up and awaiting transfer from landing to siren, was found to be full of them. Since this was the rule, from center to circumference of this magic isle, we concluded that the Cassin Auklet is the commonest bird in the Farallons; and estimates of population anywhere short of one or two hundred thousand do not take account of the facts.

Cassin Auklets are rather early nesters. They begin to haul out in February on Los Coronados, and fresh eggs, according to Howell, may be looked for at that station by the end of March. On the Farallons May 1st would be a better date; and on the islands off the Del Norte coast June 1st will suffice for at least a third of their number.

Sanitation in the Auklet burrows is a thing unknown, and the youngsters are stuffed with a semi-liquid food which smells like an abandoned fish-market. An abundance of slaty down insures the chick against rheumatism; and his quarters must seem comfortable enough to him, for he sits tight until he is full grown; and the only mark of adolescence left when he quits the burrow is a little tipping of gray down. When haled forth and released by the hand, the Auklet invariably dives downward, skimming low, first over the ground or the rocks and then over the water, and seeming to dread exposure. The reason for this is explained by Howell, who says that the Cassin Auklets suffer a great deal from the depredations of Duck Hawks. Indeed, it is the fashion of this master pirate to quarter himself near some thriving colony of Auklets, and to kill for sport even after his hunger has been appeased.

Save for the revelations of the nesting season, the Cassin Auklet is one of the least observed of birds. It takes care not to be seen by daylight in the vicinity of a nesting colony, and it feeds habitually, whether in pairs or small companies, well out to sea. The winter storms play sad havoc with these birds, and it is only from examining the wreckage cast up on shore that one may guess how large the proportion of Auklets really is in our winter bird population.

Taken on the Farallon Islands *Photo by the Author*

CASSIN AUKLET, PULLUS, IN SITU

A BOARD UNDER WHICH THE MOTHER BIRD HAD HIDDEN HER NEST HAS BEEN REMOVED

No. 292

Paroquet Auklet

A. O. U. No. 17. **Phaleris psittacula** (Pallas).

Synonyms.—Pug-nosed Auklet. Parrot Auk.

Description.—*Adult in breeding plumage:* Upperparts uniform slaty black, changing to sooty black on chin, throat, fore-neck, and sides, thence to white on remaining underparts; lining of wings fuscous; a line of narrow pointed white feathers starting from eye and continued obliquely backward and downward; a touch of white on upper eyelid. Bill with strongly convex culmen and more strongly recurved gonys (tomia correspondingly upcurved), vermilion-red, changing to horn-yellow at tip and along tomia. Size of bill slightly increased by a series of flattened pieces which are deciduous in winter. *Winter adults* are white on chin and throat as well, with the sides of the latter dusky-spotted. "*Young:* No white filaments on head; a white spot on lower eyelid; upper parts as before [in adult]; under parts white, marbled and mottled with dusky ends of feathers" (Coues). Length of adult 228.6 (9.00) or more; wing 137.2-146.1 (5.40-5.75); tail 39.4 (1.55); bill (chord of culmen) 15.2 (.60); depth of bill at base 13.6 (.54); tarsus 25.4 (1.00).

Recognition Marks.—Robin size; "pug-nosed" bill; white line of plumes from behind eye in adult.

Nesting.—Does not breed in California. Single white *egg*, roughened and soiled, placed deep in fissure or cranny of volcanic rock. Av. size 54.4 x 37.3 (2.14 x 1.47). *Season:* June–August.

General Range.—"Coasts and islands of Bering Sea and contiguous portions of northern Pacific Ocean; breeding from northeastern coast of Siberia and northwestern Alaska (including Diomede, St. Lawrence, Hall, St. Matthew, Pribilof, Walrus and Otter islands, Bering Sea) southward to Kuril, Commander, Aleutian, and Shumagin islands; southward in winter as far as Monterey Bay, California, northern Japan and Okotsh Sea; accidental in Sweden."

Occurrence in California.—Rare winter visitor along the coast, at least as far south as Point Pinos (near Monterey).

Authorities.—**Loomis** (*Cyclorrhynchus psittaculus*), Auk, vol. xviii., 1901, p. 104 (San Francisco Bay); *Beck*, Proc. Calif. Acad. Sci., ser. 4, iii., 1910, p. 59 (near Monterey, Jan.); *Clay*, Condor, vol. xiv., 1912, p. 196 (Eureka); *Bent*, U. S. Nat. Mus., Bull. no. 109, 1919, p. 116 (life hist.; desc. and photos of nest and eggs, etc.).

THE INVESTIGATIONS of Messrs. Leverett M. Loomis and Rollo H. Beck on Monterey Bay and the adjacent ocean have convinced us that there is an abundant off-shore bird life of which most land lubbers are utterly ignorant. In the month of January, 1905, and again in 1908, Mr. Beck captured seventeen specimens of the Paroquet Auklet, and picked up another, a dead one, on the beach. Evidently these are fishers of the open sea, who visit the land only by accident in time of dense fog or storm.

As nearly as can be determined, the peculiar retroussé effect of this

bird's bill is merely ornamental, since its food comprises chiefly the tiny crustaceans taken in open water. Moreover, certain parts about the base of the bill are deciduous at the end of the breeding season. While our esthetic sense may not exactly approve of the mandibular extravagances which birds of this group indulge at the approach of spring, we should remember the grotesque ear-rings and lip ornaments which have pleased the fancy of our own species at times, and we will not be in haste to criticize the bizarre tastes of these little savages of the sea. Nature may be amusing if she likes. Why not?

Birds of this and allied species exist in Bering Sea by countless millions, and they form a not unimportant element of Eskimo fare. Hungry whalers also sample them on occasion, but their flesh is not seductive to the Caucasian palate. The Paroquets nest in the abundant crevices of the rough volcanic islands, placing their single white egg upon the bare rock or soil. The males spend most of the day at sea, fishing, but return late in the afternoon to feed their mates. After this and until four or five o'clock in the morning they may be seen dozing at the entrances of their nests. "They have a low, sonorous, vibrating whistle and do not fly in flocks like most other Auks."

No. 293

Pigeon Guillemot

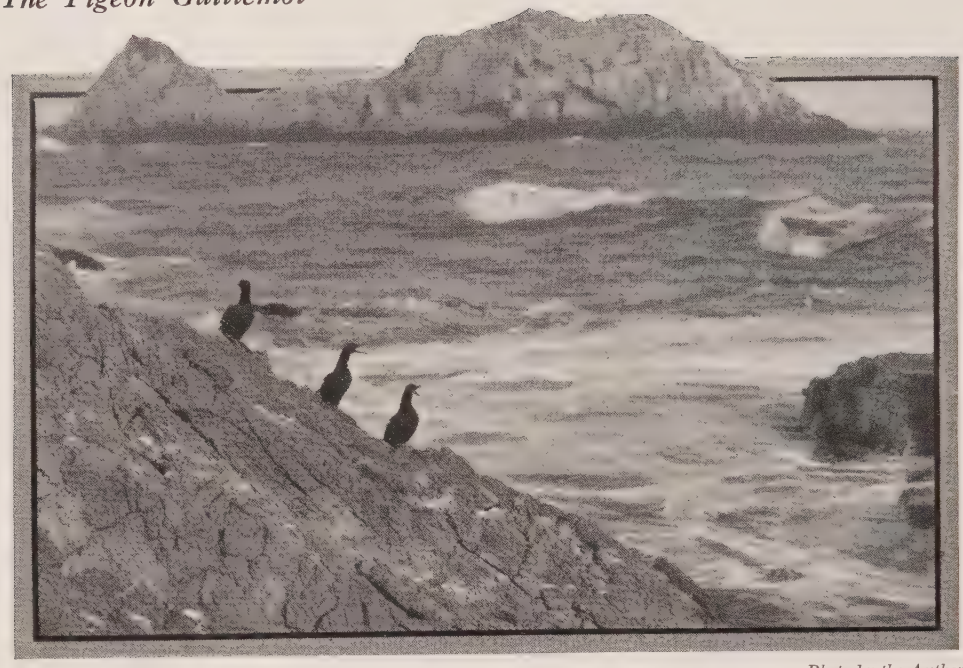
A. O. U. No. 29. **Cepphus columba** Pallas.

Synonym.—Sea Pigeon.

Description.—*Adult in summer:* General plumage sooty black, glossed with green, pure black on wings and tail; a large white patch on wing, oval in general outline, but interrupted by strong re-entrant wedge of black on distal margin. Bill and claws black, lining of mouth and feet carmine; irides brown. Plumage fading in late summer, color of wings and tail changing to gray, and white wing-patch becoming soiled with brown. *Adult in winter:* Most of head and neck, rump and underparts white; back and crown black, varied by white edgings; tail and wings black, with patch on latter clear white. *Immature:* Above chiefly sooty slate; below white, varied by sooty, chiefly in fine vermiculation; traces of wing-patch in outcropping white. Bill black; feet reddish black. *Downy young:* Sooty black. Bill and feet brownish black. Length of adult: 304.8-375.9 (12.00-14.80); average of 10 Monterey specimens: wing 182.9 (7.20); tail 50.8 (2.00); bill 33.2 (1.31); tarsus 35.1 (1.38).

Recognition Marks.—Teal size; dusky appearance; solid black with white wing-patch of ordinary plumage unmistakable; a strange pied gray bird in winter.

Nesting.—*Eggs:* 2, subelliptical; white, yellowish white, greenish white (pale glaucous) or, rarely, pale olive-buff, boldly and handsomely spotted or blotched with



Taken on the Southeast Farallon *Photo by the Author*

PIGEON GUILLEMOTS AT HOME

purplish black or rich dark sepia (which shadows or "washes" to tawny olive) and with more or less under-shell markings of violet-gray. Av. size 60.5 x 41 (2.38 x 1.61); index 67.7. *Season:* May–July 15; one brood.

General Range.—Breeding from Wrangel Island and the extreme northeastern portion of Siberia throughout the coasts and islands of Bering Sea; on the Asiatic side of the Pacific Ocean to Kamchatka and the Commander Islands, and on the American side south to the Santa Barbara Islands, California; retiring in winter from the northern portion of its range and found south to Japan and Lower California.

Distribution in California.—Fairly common summer resident, breeding about rocky headlands and upon islands south to Santa Barbara Island. Seldom seen in winter, when it probably stands out well to sea.

Authorities.—Cassin (*Uria columba*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 912 (Farallons); *W. E Bryant*, Proc. Calif. Acad. Sci., ser. 2, i., 1888, p. 30 (Farallon Ids., breeding; habits; desc. nest and eggs); *Wright and Snyder*, Condor, vol. xv., 1913, p. 88 (Santa Cruz I.; desc. nests); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 24 (s. Calif. ids.); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 167 (life hist.; desc. and photos of nest and eggs, etc.).

THE GENUS *Cepphus*, to which this Sea Pigeon belongs, enjoys a circumpolar distribution. The prevailing coolness of California's coastal climate in summer links us, curiously, with the Arctic; and we are favored, therefore, with the southernmost extension not only of this genus, but in the case of the Xantus Murrelet of the entire order *Alci-*

formes. The Pigeon Guillemot finds its center of distribution from Puget Sound northward; nevertheless, it is of fairly general occurrence as far south as the northern Channel Islands, and it has even been taken by Cooper on San Clemente.

The Guillemot is most in evidence in nesting time; and it enjoys a more uniform distribution at this season than in winter, when there are no local ties to bind it to a given stretch of water. The impression of scarcity during winter is strengthened by the fact that at this season the birds frequent the more open waters, where they avoid close approach, whether by row-boat or steamer; and that they present a totally different appearance. In winter they are clad for the most part in a suit of spectral gray, which resolves itself, only upon close examination, into a definite pattern, or mixture, of black and white. This plumage is taken on in September, but is exchanged for the solid nuptial black (with white wing patches) early in the spring—not infrequently by the middle of February, and occasionally by the 20th of January.

The birds are evidently proud of their "full dress" suits, and an envious company of "grays" will gather about some vigorous young buck who has come out in a new rig early in the season, and they will gape mingled admiration and chagrin, while the lucky fellow "stands on his tail" repeatedly with slowly fluttering wings.

On the Channel Islands, which are more or less protected from the prevailing winds which sweep the northern coast, the Pigeon Guillemots are occupying their nesting caves by May, and fresh eggs have been taken on Santa Barbara as early as May 15th. But on the Farallons and on the northern coastal rocks eggs are seldom found before the first week in June. With us, the birds have little need to provide artificial tunnels in the earth, as is their habit further north, but they nest instead in any available cranny from the water's edge to the summit of the cliff. On the mainland and sea walls or on the larger islands, the birds see to it that they are well out of reach of prowling foes. The water-worn caves of Anacapa and Santa Cruz, dismal and dripping with moisture, are favorite places of resort, eggs being placed on the floor or in any convenient cranny on or in the sloping talus of the crumbling walls. A more typical situation is provided by some isolated rock—as Prince Island—tenanted by several sorts of sea birds. The crest of such a rock will be dominated by Western Gulls, stern, rapacious, clamorous, but dignified and handsome withal. A sloping side of the rock may be crowded with Brandt's Cormorants, and a rocky shoulder by Farallon Cormorants. If the place presents a sheer seawall, Baird Cormorants will occupy its tenuous knobs and overhung ledges. Tufted Puffins to the number of scores or hundreds will circle about like unquiet spirits, silent, but ever mindful of the single

Taken on the S. E. Farallon *Photo by the Author*

A NESTING COLONY OF PIGEON GUILLEMOTS

WITH TWO EXAMPLES OF NESTS AND EGGS FOUND THEREIN

The Pigeon Guillemot

TAKING A SUN BATH

Taken in Washington
Photo by the Author

eggs stored away in cave or burrow. If the rock is a large one, it may boast a colony of California Murres, and a grassy stretch where Beal Petrels and Cassin Auklets nest. But whatever the character of the remaining population, the lower levels of the islets will boast of at least a few pairs of Pigeon Guillemots.

As one clambers over the rough sides of the rookery, these birds tumble out just ahead like sleepy children, and plunge with all speed into the nearest water, by way of getting their wits collected. After a refreshing dive, they join in turn the growing company of their fellows, who bob and hiss from beyond the kelp line.

If partially reassured the bird realights upon an exposed surface of the rock, and opens a carmine mouth of inquiry. Others join him, and soon your motives are being discussed by a whining company of these wondering wights. Their only note is a cross between a hiss and a whine, and it has no great power; but a large company of these birds can produce a mild chorus, which takes its place among those primal sea sounds which haunt the sympathetic soul forever after. It blends curiously with the voices of "the dry, pied things which be in the hueless mosses under the sea," and which are set a-murmuring when the tide runs out.

These Guillemots are not ungraceful while at rest, and it goes without saying that they exhibit the perfection of motion in the water; but on land they move about with an awkward shuffling gait, and in their shorter flights about the rocks they thrust out their great red feet cornerwise, and almost excite derision for their awkwardness.

They are, in the main, peaceable folk, and in the larger colonies are

gregarious to such an extent that one can rarely distinguish paired birds. On the whole, however, I am inclined to consider them strictly monogamous—at least in the avian sense, which takes account of only one season. Sportive pursuit often takes place in the water, and the rapidity with which these birds can appear and disappear at the surface would be instructive to the aspirants of the old swimming hole.

A cock-fight between rival suitors is apt to be quite a spirited affair. As they face each other upon the surface of the water, the combatants hold their tails, inconspicuous at other times, bolt upright; and this, with their open mandibles disclosing a bright red mouth and throat, gives the birds a somewhat formidable appearance. The actual scrimmage, however, is likely to take place beneath the water rather than upon it; and the onlooker has no means of guessing the battle's progress till the weaker bird bursts from the water like a flying fish, and so by change of scene gains a momentary advantage of his pursuer, or owns defeat outright.

In only one instance in California have I seen a breeding area which might be dignified by the name of colony. On the Southeast Farallon there are, or were in 1911, some two hundred birds. They nested sparingly all over the island and at any height, from 20 to 200 feet above tide. But there was one station, a great rock-slide just east of the lighthouse, which was entirely given over to them. Here they found shelter under boulders or in shaded crevices; and it was noticeable that they were almost always at pains to line the "nest" carefully with pebbles, granite fragments and bones or else with iron-flakes rusted out of the five-gallon kerosene cans flung from the lighthouse above. On the 3rd of June 1911, I found eight nests with two eggs each, the full complement, within an area of sixty feet square. Hard by were six more nests in which only one egg had yet been deposited, besides a dozen "empties."

The bold spotting and blotching of the Guillemot's egg, dark brown and lilac gray, on a lightly tinted or clear white ground, would argue an earlier or else an incipient habit of nesting in the open. And in the North I have found eggs which enjoyed no better protection than shadowing grass or weeds. The deposition of two eggs also indicates a possible affinity with the Murrelets, and a departure from the normal monotokous type of the *Alcæ*. I have taken one set (possibly a composite, however) of three eggs, and the M. C. O. has a set of three taken by Mr. John J. Boyce near Wrangell, Alaska, which is almost certainly the product of one bird.

Baby Guillemots are covered from the hour of hatching with a thick black down. Their feet are pale reddish black, and their bills black with a tiny white tip. This plumage, one may readily see, is protective only in so far as it comports with shadow; the young birds, therefore, have an

individual passion for obscurity. Brought to the light, the chick will not rest for the fraction of an instant, but is off instead in a tireless quest for a hidey-hole. One bird, in particular, which I was trying to photograph, nearly wore a hole through my Job stratum. I had labored with the creature for perhaps half an hour, in vain. Finally, I put it in the bottom of a canvas canoe, divested of all hope of shelter. Not for one moment would that pickaninny pause except through exhaustion, when its collapsed condition would have reflected, I fear, upon the artist, and might even have required explanation before the S. P. C. A. Upon recovery, instead of perking up and taking a momentary glance about, as a young gull would have done, it rose up and struck out for solitude, all with a single impulse which the waiting camera could not resolve.

Finally the chick won out. I returned it to its rocky cradle, and we both heaved a sigh of relief.

About the only way to find these little black rascals is to put your ear to the teeming rocks and listen for the subterranean peepings. They are adventuresome explorers, and it is doubtful if their own mothers can always find them.

No. 294

Ancient Murrelet

A. O. U. No. 21. **Synthliboramphus antiquus** (Gmelin).

Description.—*Adults in breeding plumage:* Head and neck sooty brown, changing to black on crown and nape, an invasion of white from underparts on sides of neck; a white stripe made up of sharply projecting white feathers, starts over each eye and, running obliquely backward and downward, nearly meets fellow on nape; touch of white on each eyelid; upperparts in general dark bluish ash, becoming brownish dusky on wings, especially the edges and tips; the sides of neck ("shoulders") sharply streaked with eruptive white feathers, like those of corona, upon a ground of sooty, which is in turn continuous with that of sides and flanks; remaining underparts, including lining of wings, pure white. Bill very small, the commissural length about twice that of culmen, yellow or whitish, blackening at base and (more sharply) on ridge; feet and legs yellowish with abrupt black line on back of tarsus; webs blackish, nails black. *Adult in winter:* More extensively and purely plumbeous, the black of crown duller and tinged with plumbeous; throat finely mingled sooty brown, plumbeous, and white, in endless variety of pattern; sides mingled plumbeous-gray (prevailingly), sooty black, and white, in bold patchy pattern; *special white feathers of corona and shoulders nearly obsolete;* invasion on sides of neck anteriorly *not* more extensive and *not* threatening to meet fellow across nape [Coues' statement to this effect has caused much misapprehension]. *Young of the year:* Like adult in winter, but white of underparts invading sides of head

and throat nearly to chin (where clouded with plumbeous dusky); black of head still more overlaid with plumbeous, the sides at first with terminal skirting of plumbeous dusky appearing as sharp transverse bars on white ground, then clearing to nearly uniform plumbeous ashy; white feathering of corona and shoulders merely indicated. It is not clear from material at hand whether the bird assumes adult characters the first spring; probably not. At any rate adult birds in Monterey waters are beginning to take on nuptial plumage in January, while unmodified juveniles are still to be found in March. *Downy young:* Underparts pure white throughout; upperparts chiefly mingled black and white, becoming pure black on top and upper sides of head, and on cervix, wings, and flanks. Bill black; feet and tarsi yellowish in front, blackish behind. Length of adult: 241.3-266.7 (9.50-10.50); average of 10 Monterey adults: length (skins) 259.5 (10.20); wing 133.6 (5.26); culmen 13.2 (.52); gape 27.4 (1.08); depth at rear convexity of culmen 6.9 (.27); tarsus 26.9 (1.06).

Recognition Marks.—Robin size; white crown-stripes distinctive in summer. In winter, nape more broadly sooty-plumbeous than *B. marmoratus*, bill much shorter and showing yellowish on sides; chin and throat washed (this being the general effect, it is really mottled) with plumbeous dusky, where *B. m.* is pure white.

Nesting.—Does not breed in California. *Nest:* a burrow in bank or crevice in cliff. *Eggs:* 2; elliptical ovate or elongate ovate, pale olive-buff to dull pinkish buff, marked faintly, finely, and rather uniformly with olive-brown and violet-gray. Av. size 61.1 x 38.6 (2.405 x 1.52); index 63. *Season:* April 20–July 28; one brood.

General Range.—Coasts and islands of northern Pacific Ocean and southern portion of Bering Sea; breeding from Alaska Peninsula west along the Aleutians to the Commander and Kuril Islands, and east to southeastern Alaska (Forrester Island). In winter south to the coasts of California and Japan.

Occurrence in California.—Fairly common winter resident on the ocean throughout the length of the State; occasionally visits the harbors.

Authorities.—Stejneger (*Synthliboramphus antiquus*), Proc. U. S. Nat. Mus., vol. ix., 1886, p. 524 (Monterey); *Loomis*, Proc. Calif. Acad. Sci., ser. 2, vi., 1896, p. 17 (occurrence off Monterey); *Bishop*, Condor, vol. vii., 1905, p. 141 (Pacific Beach, San Diego Co.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 22 (s. Calif. ids.); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 132 (life hist.; desc. nests, egg, etc.).

AS IN THE CASE of the preceding species, but much more commonly, this old-man-of-the-sea spends his winters in California waters. Records of occurrence abound, but the favored observers, with one exception, have not given us any full account of the bird's behavior in winter. The happy exception is Mr. Loomis, who in the winter of 1894-95 was stationed at the Hopkins Seaside Laboratory:[1] "About five hundred yards from the surf, a belt of drift kelp, extending from the Seaside Laboratory around Point Pinos, had gained an anchorage on the rocky bottom. The narrow strip between this breakwater and the beach was the favorite resort of Ancient Murrelets, except on the rare days when there was a north wind, which invariably drove the bird life of the bay away from the exposed south shore. A good many were also found near

[1]Reported in Proc. Calif. Acad. Sci. 2nd Series, Vol. VI., 1896, California Water Birds, No. II—Vicinity of Monterey in Midwinter, by Leverett M. Loomis, pp. 17-18.

the surf in the little coves in the direction of Monterey and some were seen miles out from the land. In the sheltered places they chiefly frequented, food appeared to be abundant. They were great divers and swimmers under water, and voracious in their pursuit of small fry, occasionally driving the fish to the surface in the eagerness of the chase. Often not a Murrelet would be in sight for some time. Then a pair or small company (the largest one observed numbered nine individuals) would suddenly appear from the depths. Unlike the Marbled Murrelets, they did not generally seek safety in flight when pursued. Neither did they dive as soon nor remain as long under water when keeping out of the way of the boat. If a white-cap developed near them they would always escape from it by diving. Although over a hundred were taken in the narrow belt near the surf, they were more numerous there toward the last than at the outset, new birds apparently coming in to take the places of those that had been shot."

Ancient Murrelets colonize in vast numbers upon various rocks and islands off the Alaskan shore. They nest in burrows, laying two neutral-tinted and elongated eggs, and the females are supported by the nocturnal visits of the male, as in the case of the Horn-billed Puffin and other birds of this group. A charming account[1] of the nesting on Forrester Island has been written by Professor Harold Heath, of Stanford University, from which we quote the concluding paragraphs.

"The journey of the young to the sea is one of the most interesting sights on the island, and by the aid of a lantern was witnessed on several occasions. The pilgrimage is made during the night within a day or two after hatching, and is evidently initiated by one or both of the parents, who take up a position on the sea not far from the shore. Here, about midnight, they commence a chorus of calls resembling the chirp of an English sparrow with the tremulo stop open, and in response the young, beautiful, black and white creatures, as active as young quails, soon pour in a living flood down the hillsides. Falling over roots, scrambling through the brush or sprawling headlong over the rocks, they race at a surprising rate of speed drawn by the all-compelling instinct to reach the sea. They may be temporarily attracted by the lantern's light, and flutter aimlessly about one's feet; but sooner or later they heed the calls and once more plunge down the slopes. Almost every night during these migrations the surf was pounding violently on the rocky beaches, and many times one could see the young swept off the cliffs, and after struggling a moment in the waves they disappeared from sight and seemed doomed to destruction. Notes made at this time run as follows: 'The tremendous violence of the breakers, churned to foam on the low yet

[1] The Condor, Vol. XVII., Jan. 1915, p. 35.

precipitous cliffs, have destroyed birds of larger size and smashed boats to splinters. It is therefore altogether probable that the life of many of these delicate and diminutive birds is snuffed out during each migration.'

"To test the correctness of this observation a young murrelet, which came down the slopes early one evening, was liberated on the beach close to the dashing surf. Without a moment's hesitation, and without the stimulus of a parent's call it plunged boldly into the water, poised a moment on the summit of a great foam-crested wave, and dived with surprising speed and accuracy to reappear ten seconds later as many feet at sea. A momentary appearance, another dive and still another carried it beyond the swirl of the surf, and, swimming rapidly and paddling across patches of kelp always in a bee line, it soon disappeared from view. It is evident therefore that the last sentence of the preceding paragraph is in need of revision."

No. 295

Marbled Murrelet

A. O. U. No. 23. **Brachyramphus marmoratus** (Gmelin).

Synonyms.—Townsend's Murrelet. Wrangel's Murrelet.

Description.—*Adults in breeding plumage:* Upperparts brownish black everywhere save on wings, cross-barred with bright rusty or chestnut, and with lingering traces of plumbeous; primaries blackening distally, changing to gray on inner webs basally; a few white touches on scapulars; lining of wings brownish black; entire underparts, including sides of head and neck, mottled white and sooty brown (the pattern varying individually, but usually heaviest on chest and sides); the flanks also spotted with rusty. Bill black; backs of tarsi and webs of feet blackish, fronts of tarsi and tops of toes flesh-color. *Adult in winter:* Entire underparts pure white, the color encroaching on sides of head to lore, on sides of neck nearly (but never quite) meeting behind, on sides of rump leaving dark area an inch wide; upperparts chiefly plumbeous, changing to blackish on crown, wings, and tail; feathers of back, etc., with blackish centers and some ashy edgings; scapulars chiefly white, forming conspicuous patches; greater wing-coverts narrowly edged with white. Specimens exhibit every intermediate phase between these two extremes according to age (?) and season. *Immature* (first plumage): Upperparts like adult in winter, but blacker without plumbeous; white of scapulars restricted; underparts chiefly white, but finely barred or wavy-marked, save on chin, belly, and crissum, with sooty brown. Length of adult: 254 (10.00); wing 127 (5.00); bill 16.5 (.65); depth at base 6.1 (.24); width 5.1 (.20); tarsus 17.8 (.70).

Recognition Marks.—Robin size; in winter (when oftenest seen) to appearance a miniature California Murre; black (plumbeous) and white coloration; sharp tapering bill with long sloping forehead; short-necked and low-lying, as compared with Horned Grebe; form elongate as compared with the smaller Auklets; chin white, nape more

narrowly sooty, bill longer and more uniformly black, as compared with the Ancient Murrelet; larger, lighter above, plumbeous dusky instead of slaty black, and upperparts more extensively invaded by white, as compared with the Xantus Murrelet.

Nesting.—Not known to breed in California, but probably does so. *Eggs:* 2; probably placed at end of short burrow in mountainside, many miles from water; elliptical ovate; pale bluish green (glaucous), finely and sparingly spotted with blackish brown. Size about 62 x 35 (2.44 x 1.38).

General Range.—Pacific Coast of North America from the Alaska Peninsula south to San Diego; breeding in the mountains (?) south to Santa Cruz County, California.

Distribution in California.—Resident in winter on the ocean throughout the length of the State; rarely seen in harbors. A few remain through the summer, and evidently breed in the coast ranges.

Authorities.—Cassin (*Brachyramphus marmoratus*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 915 ("California"); *Loomis*, Proc. Calif. Acad. Sci., ser. 2, vi., 1896, p. 19 (off Monterey); *J. Mailliard*, Condor, vol. vi., 1904, p. 15 (Monterey, June and July); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 141 (life history).

THE EASTERN visitor, even though admonished by his San Francisco friends, will never understand why he should bring an overcoat *in summer*. It is for the reason also that notably "refreshing" breezes playfully romp anywhere from Crescent City to Point Conception on a summer afternoon, that Dr. Grinnell, veteran ornithologist of the West, could only say of the Marbled Murrelet: "Fairly common winter visitant on the ocean coastwise"; adding, rather tamely, "Has been found in June and July on Monterey Bay." No; the summer waters of Alta California are not suited for extended exploration a la skiff; and for this reason the author will beg the privilege of introducing his protégés from a northern station, and then of making some pertinent remarks about the Marbled Murrelet as a breeding bird of California.

For those who long for "something different" we recommend a steamboat ride along, say, the Straits of Georgia, or across the eastern arm of Juan de Fuca on a blowy day in December. To be sure it is a bit chilly out, and there are spiteful dabs of rain between whiles, but the forward deck is clear, for the helpless ones are crowded in the cabin playing poker or scowling gloomily out of the windows. We may have the bow to ourselves—you and I—and what a glorious company of sights and sounds there are about us! Every blue-gray wave has a voice, and the gray-blue wind tries every tone with its deft fingers. The chorus smites upon the prow with its never-ending climaxes of spray, to which our staunch boat opposes only its patient methodical sighing. Now the wind laughs, and while it marshals its serried ranks for a fiercer charge, our drummer boy, the trusted flag-rope, beats furious tattoo. Crash! Poof! Poof! We win!

But there are those who enjoy the conflict of the storm even more than we. Above the whining of the waters and the crashing of the prow, come shrill exultant cries, *Meer - meer, meer - meer.* The Murrelets are in their element, and they shriek to each other across the dancing waters like Tritons at play. Perhaps association will partly account for it, but somehow the note of the Marbled Murrelet seems of itself to suggest piping gales and rugged cliffs beset by pounding surf. It is the articulate cry of the sea in a royal mood. And not a thousand Murrelet voices are required to transport the hearer to Alaska forthwith.

Save in summer, the Murrelets appear chiefly in pairs, and it is interesting to note the harmony of action in the case of mated birds. They sit upon the water, usually abreast, from one to four feet apart, and in flight they maintain the same relation. In rising from the water they do not patter, after the fashion of the grebe, but burst out by a sudden effort. They do not, however, always succeed in getting quickly under way, for they sometimes bump along over the surface like a skipping stone, and are even quite baffled if they are called upon to clear an unusually high wave. Once a-wing, however, they vibrate the pinions with extreme rapidity and appear to move like winged bullets.

Because so agile, they are often quite venturesome, and the pursuit of fish is sometimes carried on before a wharf-load of beholders. About the docks of one of the navy-yards these birds are especially fearless. They look like little men-of-war themselves, as they lie at anchor on the surface of the water; but when they get news from below by wireless, they are off like a flash, down, down into the cool green depths. They do not swim under water, but fly rather. At first one may see the wing-strokes, incisive, rapid; then only the quickly disappearing white of the bird's nether parts is visible; and lastly, a slowly rising line of bubbles which mark the first dozen feet or so of the diver's course. When surprised at close quarters by a steamship, the bird oftener escapes by diving than by flight, and so confident is he of his powers in this regard that he tarries to indulge the last possible moment of curiosity before going below.

The nesting of the Marbled Murrelet is one of the most fascinating mysteries in the annals of the West. The presumption was that eggs would be found on rocky islets in burrows, quite after the fashion of the Ancient Murrelet; but all such claims are now discredited. The only indubitable egg was taken by George G. Cantwell, May 23rd, 1897, from the oviduct of a female shot by a Haida Indian boy. The older Indians, when questioned, affirmed their belief that the birds bred high up in the mountains in hollow trees. The "hollow tree" touch is doubtful, for no bird of this group could "dock" in a hole in a tree with sufficient accuracy to guarantee a continuance of the race. But the mountain

tradition has slowly gained credence, and there is an account of an egg, now in the collection of Mr. Chas. E. Doe, of Providence, R. I., which was taken by Mr. A. H. Durham from rocky land some seventy miles north of Nome. I am firmly convinced that these birds not only nest in or upon the sloping sides of western mountain ranges, but that they nest in some numbers on the coastal ranges of California. Here is my line of evidence from the beginning: At Glacier, on the North Fork of the Nooksack River, in the State of Washington, and near the foot of Mount Baker, having risen before daybreak for an early bird-walk, on the morning of May 11th, 1905, I heard voices from an invisible party of Marbled Murrelets high in air as they proceeded down the valley, as though to repair to the sea for the day's fishing. It was too late in the season for migratory flight, and the Murrelets are not known to visit interior waters, at least in the summer season.

MARBLED MURRELETS

The Quileute Indians, of the west Washington coast, claim that the Marbled Murrelet, the *Tichaah-lukchtih*, does not nest like the other sea-fowl, upon the rocky islets, the Olympiades, but that it colonizes upon some of the higher slopes of the Olympic Mountains, where they lay their eggs in burrows; and one of their number claims to have come upon such a colony several years ago while hunting in company with a white man. I have toured the Olympiades three different seasons in Indian canoes, and I found my Indian guides infallible in the identification of sea-birds. The Marbled Murrelet certainly does not nest on any of the islands, where birds of thirteen other species are known to breed.

Of the Marbled Murrelet as a possible summer resident of California we have only the following scanty references: "We have quite a number

in our collection taken on Monterey Bay in the month of July, and one in June" (Joseph Mailliard, Condor, Vol. VI., Jan. 1904, p. 15); "The Marbled Murrelet appeared (at Monterey) early in July but it did not become common until at the end of the month" (Loomis, California Water Birds, No. 1, 1895, p. 211.)

On the eighteenth of May, 1914, while in camp with a party on "Major Creek," at a point well up in the foothills of the Santa Cruz Mountains, I roused at early dawn to see a dark meteor crossing the sky and going down the valley in a fashion which suggested an Auklet or a Murrelet; but because the bird was silent, I let the incident pass unchallenged. When, however, some fifteen minutes later I heard cries, *meer, meer*, as familiar as the voices of childhood, I sprang to my feet. Two pairs of Marbled Murrelets passed overhead in full cry, each going straight down the valley at a height abou ttwice that of the surrounding redwoods. The following morning, Sunday, I believe, as I lay dozing, the cries of Murrelets again aroused me, and I woke up to count six passing parties, all descending. Somewhere on the slopes of Ben Lomond there is a nesting colony of Marbled Murrelets, and these birds were returning to sea-duty after spending the night with their mates or young.

In June, 1916, we made our oölogical camp about half a mile back from the ocean near Trinidad, in Humboldt County. I soon began to suspect the presence of Marbled Murrelets from distant lispings; but it was not until the evening of the 20th, at about 7:30, that a party of them passed almost directly overhead *bound for the interior*. On the evening of the 22nd, and again on the morning of the 23rd, I had the good fortune to note both the landward and seaward passage of Marbled Murrelets. Some birds passed quite low over our camp, at 7:50 in the evening, on the way to their mountain (?) nesting site, and birds were heard returning at 4:15 the following morning. I repeatedly observed a Marbled Murrelet in full breeding plumage in the harbor of Trinidad on the evening of June 24th.

On the morning of July 1st, having spent the night with Mr. and Mrs. H. E. Wilder of Carlotta, we rose for an early start, and were immediately greeted by Murrelets. Thrusting head out of window, I distinctly heard two birds as they made their way down the valley. This time we were twenty miles from tide-water. Somewhere on the slopes of the Trinity Mountains there is a breeding colony of Marbled Murrelets!

No. 296

Xantus's Murrelet

A. O. U. No. 25. **Endomychura hypoleuca** (Xantus).

Synonym.—White-bellied Murrelet.

Description.—*Adult:* Above and on sides (including axillars) slaty black, the plumbeous tone faintly differentiated as skirting of feathers on back and wings; a touch of white on either eyelid; below pure white, the lining of wings either pure white or mingled in varying proportions with smoky gray. [Most published descriptions of *E. hypoleuca* give "wing-lining pure white" as a diagnostic character, and the name *Endomychura* (*Brachyramphus*) *craveri* (Salvadori) has been given to an alleged southern form on the sole ground of smoky gray wing-lining. But the fact seems to be that *E. hypoleucus* exhibits every degree of gradation from pure white to pure smoky. At any rate, every variation within these limits is found off Monterey in winter. If this be not the true explanation, then a new form having wing-linings of pure white and *characterized by a shorter beak* must be set off from the bulk of mottled smoky-and-white birds—and there is material in the Berkeley museum to support such a view.] Bill black; iris brown; feet "whitish blue." No recognized seasonal changes. *Downy young:* Above bluish black; below pure white. Bill black; feet paler. Measurements, average of 10 Monterey specimens: length 246.8 (9.72); wing 118.2 (4.65); bill 19.4 (.76), depth at angle of gonys 5.4 (.21); tarsus 23.7 (.93).

Recognition Marks.—Robin size; black above, white below; amphibious habits. Requires careful distinction from *B. marmoratus* (see under foregoing).

Nesting.—*Eggs:* 1 or 2; placed at end of short burrow or in crevice or cave, or under rock of sea-girt islet; variable in shade, and often exhibiting the most abrupt diversity between "mates," dull white (rarely), olive-buff, greenish olive-buff and pinkish olive-buff (avellaneous) to dull tawny olive or even dresden brown and cinnamon-brown; marked variously with purplish black, brownish black, deepest chocolate or intense bister. Some specimens are nearly immaculate; in others the color is finely and uniformly sprinkled over the entire surface; others are "cloud-capped" or handsomely wreathed about the larger end. Av. size 53.5 x 36 (2.11 x 1.42); index 67.3. *Season:* March–July; one brood. (The extremes of the season probably represent the activities of diverse stocks or tribes.)

General Range.—Coasts and islands of southern California and western Lower California. Breeds sparingly as far north as Anacapa Island, and wanders further at the close of the breeding season (?), probably as far as Tomales Bay (Nov. 10, 1910).

Authorities.—**Coues** (*Brachyramphus hypoleucus*), Proc. Acad. Nat. Sci., Phila., vol. xx., 1868, p. 64 (coast of Calif.); *Beck*, Proc. Calif. Acad. Sci., ser. 4, iii., 1910, p. 60 (Monterey Bay; occurrence; crit.); *van Rossem*, Condor, vol. xvii., 1915, p. 74, figs. (crit.; relationship of *hypoleucus* and *craveri*); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 22 (s. Calif. ids.; habits; occurrence, etc.).

THE OPEN SEA is its home. Our little diver finds safety and food far from land and the waiting enemy, the grim Duck Hawk. On or near the surface it rides out storm or sunshine until darkness makes possible a return to its island.

If a heavy wind brings white-caps too close, it dives into and through the waves, emerging in the trough. And it is here that one of the tragedies of its life is enacted. At the times of the real south-easters, when day after day the sea is piled mountain high and the tiny prey seeks stiller and deeper waters, then many a poor murrelet, weak from hunger, faces a struggle with the elements that calls for every reserve of vitality and endurance. The bodies strewn upon the beaches after every big storm bear evidence of the number that have failed.

But on a typical summer day it rests on the glassy surface, rising and falling with the gentle swell. With its mate, or perhaps a small family group, it searches for the marine invertebrates on which it feeds. Sometimes one bird, or both, disappears for a moment, attracted by food a few feet below. If disturbed or frightened it flies, not far, not straight, but with surprising velocity, curving until it again drops into the water.

Its range is the vicinity of the southern California islands. From the Santa Barbara group on the north, straggling as far as Monterey Bay, it is the only resident murrelet to be found until it meets its cousin, the *craveri*. Their point of intergradation is somewhat indeterminate, but probably occurs about four hundred miles below the California-Mexican boundary, in the vicinity of Cedros Island. Sixty years ago two specimens of the Xantus were taken near Cape San Lucas, but the use of that record in describing the present day distribution would be misleading.

Taken on Los Coronados Islands, L. C. *Photo by Donald R. Dickey*

ADULT XANTUS MURRELET ON EGGS

Within its area it is likely to be confused with only two other birds. The Ancient Murrelet, which often comes down in mid-winter, is decidedly larger, and has fourteen rectrices instead of twelve. The Cassin Auklet is slightly smaller, but its breast is a brownish grey instead of an immaculate white.

It is early summer; we are in a fishing boat, cruising. There is hardly a breath of air, not a ripple on the water save

where broken by fish or bird. Ahead are two dark specks—we change our course so as to pass within fifty feet. They do not allow so close an approach. There is the flap, flap, flap of their sturdy little wings on the water and they are in full flight, barely skimming the surface. Now we see the white breast, becoming more distinct as they characteristically cross our bows, and we have positively identified the Xantus Murrelet.

They soon alight and resume their search for food. It is sometimes to be found on the surface, sometimes to be obtained by diving. It is then that the small loon-like wings become useful,—the wings which, though they enable the bird to attain tremendous speed in flight, cannot launch it from the ground. Once under water the feet are little used; it is these short heavily muscled wings with which it propels itself.

Taken on Anacapa Island *Photo by Dickey*
XANTUS MURRELET CHICK

If we wish to see it at rest, we must follow it to its breeding grounds on one of the islands and be prepared to make a diligent search. We go to a known colony but not a bird is to be seen. On guard is the deadliest of falcons, the red demon of the sky from whom there is no escape. So we climb and crawl over rough and crumbling rock, through thick scrubs, up and down the steepest inclines, until, under the face of a weathered sandstone cliff, we find some broken egg shells—shells of a light tan color, spotted with lavender and brown.

These are from a past season. But this Murrelet has a well-marked habit of returning to former nesting holes, so we scan the cliff for a likely crevice. Eight feet above our heads the soft stone has weathered. We climb to where we can look in, and there, five feet into the recess, sits a small black bird.

We know we have found the colony so we begin a systematic search of the ravine, from the water's edge to the top of the island, six hundred feet above the sea. The sites the birds choose are almost endless in variety; what they demand is some natural hollow into which they may crawl and be in the dark. This is usually found in soft rock; it matters little to the birds whether on an imposing precipice or in a jutting rock two or three feet high. Often a cave, large or small, will suit, especially a remote corner where the roof is but a few inches from the floor. Often

they will crawl under thick vegetation to lay, if their other requirements can there be met.

The Xantus Murrelets have many nesting characteristics which are worthy of note, or which, not fully understood, have given rise to many errors in bird books. They are decidedly gregarious in their breeding sites. For example, on the Coronado Islands, just below the Mexican border, there are three well defined colonies on South Island. Yet five miles away, on North Island, which swarms with Cassin Auklets, gulls, pelicans, and cormorants, no Murrelet's nest has ever been discovered.

Taken on Anacapa Island *Photo by Dickey*

EGGS OF XANTUS MURRELET, IN SITU

The individual birds of most species nesting in this manner will lay almost at the same time. Not so the Xantus Murrelet. On any day in the late spring or early summer eggs exist in every state of incubation. I have obtained from the original data blanks of Mr. Nelson Carpenter, making due allowance for condition, proof that in one of the colonies referred to on South Island there have been eggs continuously from the earliest part of April to the twentieth of July,—a period of over three and a half months. On May first of this year (1921) I examined nests containing a downy young, sets of half incubated eggs, of fresh eggs, of eggs on the point of pipping, besides numerous shells the conditions of whose membrane showed that they had hatched this spring.

This disposes of the theory of two distinct nesting seasons. These birds are merely following individual idiosyncracies in their nesting dates. They do not at any time congregate in flocks; when found in groups larger than three or four, it is merely a matter of accident. So when they come to their breeding grounds, they do so independently of each other. The result is violent fluctuations from year to year, and a season which, while

ordinarily reaching its hey-day in May, spreads broadly both ways.

In the day time the male bird is on the nest. I make this statement with a little hesitation, for my opportunity to check it has been limited. He is so quiet that not a sound is to be heard even when the colony is being invaded. In fact the only known note of these birds is the low piping whistle exchanged between the mates when they relieve each other from duty. He makes no show of resistance or protest if the eggs are taken by hand or scoop, even if he himself is dragged from the nest, and he never "flushes." Catch one and throw him into the air. He will drop just as near the ground as he can fly, inches above the rocks, and make a bee line down the steep island side to the water.

The normal set of eggs is generally given as two, but this is an error. I have the complete record of the 96 sets collected by Mr. Carpenter, to which I have added the last four taken in his presence to bring the figure to an even hundred. They show one set of four eggs; four sets of three eggs each; forty-nine sets of two eggs each, and forty-six of one each; total one hundred sets. Undoubtedly some of the sets of one, if undisturbed, would have had a second egg. But a study of the data shows that the ratio of sets of one and sets of two is nearly even, and would not exceed 3 to 2. The number of eggs should be given as either one or two. I have made a special examination of the set of four. It is one set and the work of one bird beyond any ground for argument.

It is worthy of remark in this connection that in not one of these hundred quoted cases or any others that I have been able to find has the bird made an attempt to improve its nesting site, either by burrowing or by bringing in soft material on which to deposit its eggs. This is the more surprising from the fact that the shells are not particularly strong, and the number that crack through contact with the bare rocks is very large.

The eggs are almost as large as those of the domestic hen—some egg for a bird of this size! They show an endless variation in color, even within the sets, from dark chocolate to plain sky blue. The majority are yellowish-gray with spots and blotches of green, purple, or brown. But there is no coloration that could be called typical.

That more details are not known of the life of these birds is because at sea they are difficult to observe, and ashore they are nocturnal. If you camp in one of their colonies you will be disturbed soon after nightfall by the inrush of the birds. They give an undeniable impression of being frightened,—rattled. Amid great confusion they exchange places on the nests; a process repeated again just before day-break, accompanied by bangings against the ground and the rocks that an aviator would term poor landings.

The downy young that are about three days old add to the confusion, for they choose the night to start their hegiras. Without guidance or path they tumble off rocks, fall from cliffs, downward, ever downward, until caught by a smashing wave at the shore. And here all trace of them is lost, until we find them again as adults.

GRIFFING BANCROFT.

No. 297

California Murre

A. O. U. No. 30a. **Uria troille californica** (Bryant).

Synonyms.—CALIFORNIA GUILLEMOT. CALIFORNIA EGG-BIRD. FARALLON BIRD.

Description.—*Adult in summer:* Head and neck all around warm sooty brown, changing on upperparts to dark brownish slate, feathers of back and rump with a little pale grayish brown edging; underparts from throat abruptly pure white, the sides shaded or striped with sooty; wing-linings white, varied with dusky; secondaries narrowly tipped with white; a sulcus, or groove, in plumage behind eye. Bill and feet black; irides brown. *Adult in winter:* Similar, but white of underparts extending to bill, and invading occiput till only a narrow central stripe of black remains, shading on head enough to outline a dusky stripe behind eye. *Immature, first winter:* Like winter adults, but white not invading occiput, and less extensive on side of head, with some dusky clouding on jugulum. *Chicks* are white centrally below and brownish dusky above, with lance-linear projecting white feathers on head and neck. Length of adult 381-457.2 (15.00-18.00); av. of 10 Monterey specimens: length (skins) 439 (17.3); wing 206.3 (8.12); bill 44.8 (1.76), depth through angle 13.3 (.52); tarsus 38.8 (1.53).

Recognition Marks.—Crow size; black and white coloration; aquatic habits; sharply pointed wings; rapid, graceful flight; tapering head, slant of forehead nearly conformable to that of bill.

Nesting.—Single *egg*, laid on ledge of rock, in cranny or in cave; sharply tapering at one end, very variable as to ground-color, ranging through white, grayish- bluish-, or greenish-white, to deep sea-green, and variously marked, spotted, scrawled, or stained with brownish or purplish black and such self-tones as ecru-olive, clay-color, Prout's brown, sayal brown, walnut-brown, and snuff-brown, or even, rarely, chocolate. Av. size 82.2 x 52.2 (3.24 x 2.055); index 63.5. *Season:* June (March 6–July 25, Bent).

General Range.—Coasts and islands of the northern Pacific Ocean, Bering Sea, and the adjacent portions of the Arctic Ocean. Breeds from southern California north to Norton Sound, the Pribilof Islands, St. Matthews Island, the Aleutian Islands, and the Commander Islands. At other seasons recorded north to Wrangel Island and south to northern Japan.

Distribution in California.—Common resident on the ocean, usually well off shore. Breeds in large numbers on the Farallons; in lesser numbers south to Prince Islet off San Miguel, and upon the rocks of Humboldt and Del Norte counties. South in winter at least to Newport Beach ,Orange County (van Rossem).

Authorities.—Newberry (*Uria troile*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 110 (Farallon Islands); *H. Bryant*, Proc. Boston Soc. Nat. Hist., vol. viii., 1861, p. 142 (*Catarractes californicus*, orig. desc.; type locality, Farallon Islands); *W. E. Bryant*, Proc. Calif. Acad. Sci., ser. 2, i., 1888, p. 31 (Farallon Ids.; breeding habits, etc.); *van Rossem*, Condor, vol. xvi., 1914, p. 144 (Newport Beach, Orange Co.; southernmost record station).

THE AUK-TRIBE is an ancient race which has long occupied northern waters. Although circumpolar in distribution, its two centers of abundance lie in the North Pacific and the North Atlantic, respectively, with a present showing of twenty breeding species (and subspecies) for the former and six for the latter. This leaves three forms *Alle alle*, *Cepphus mandti*, and *Fratercula arctica naumanni* as exclusively Arctic breeders. And if the Atlantic should boast the former grandeur of the Great Auk, *Plautus impennis*, whom hungry sailors slew, the Pacific is able to point with pride to *Mancalla californiensis* Lucas, of Los Angeles, a Miocene Alcad of equal height and girth—and helplessness; for it, too, was flightless. But, indeed, who living in Los Angeles would care for wings?

The name of California, viz., *californica*, likewise attaches to the Pacific representative of the Old World Murre, *Uria troille*. The reputation of this bird has been so largely made on the Farallon Islands, that we are likely to forget that the species enjoys a fairly uniform distribution from the northernmost of the Channel Islands, viz., Prince Island, north to the rocks in Norton Sound, Alaska.

As we approach one of these lesser citadels, some gaunt fastness which the sea birds have known for ages as home, our presence will not pass unnoticed. Scouting puffins, shags, and gulls will have reported us unfavorably to their waiting companions; while the Black Oyster-catcher, that prince of yellow journalists, will have published a lurid account of our misdoings, when as yet we are a hundred yards removed. Conspicuous among the anxious, hurrying throng which expects our approach, are bevies of California Murres, swifter of pace and more graceful in motion than either puffins or cormorants; and they go hurtling about without apparent object other than to maintain their share of the general excitement.

The Murres, however, are easily satisfied, and will soon return to their ledges to await our more particular inspection. Whether we land from skiff, launch, or canoe, the landing will engage all our attention. For

it's easy to fly, and it's easy to sail, but Mother Earth is jealous of such defection, and we dare not return too suddenly to her bosom. The dread of a bad landing haunts the most seasoned sea-farer, as the pangs of approaching maternity haunt a woman; but once the travail is past, there

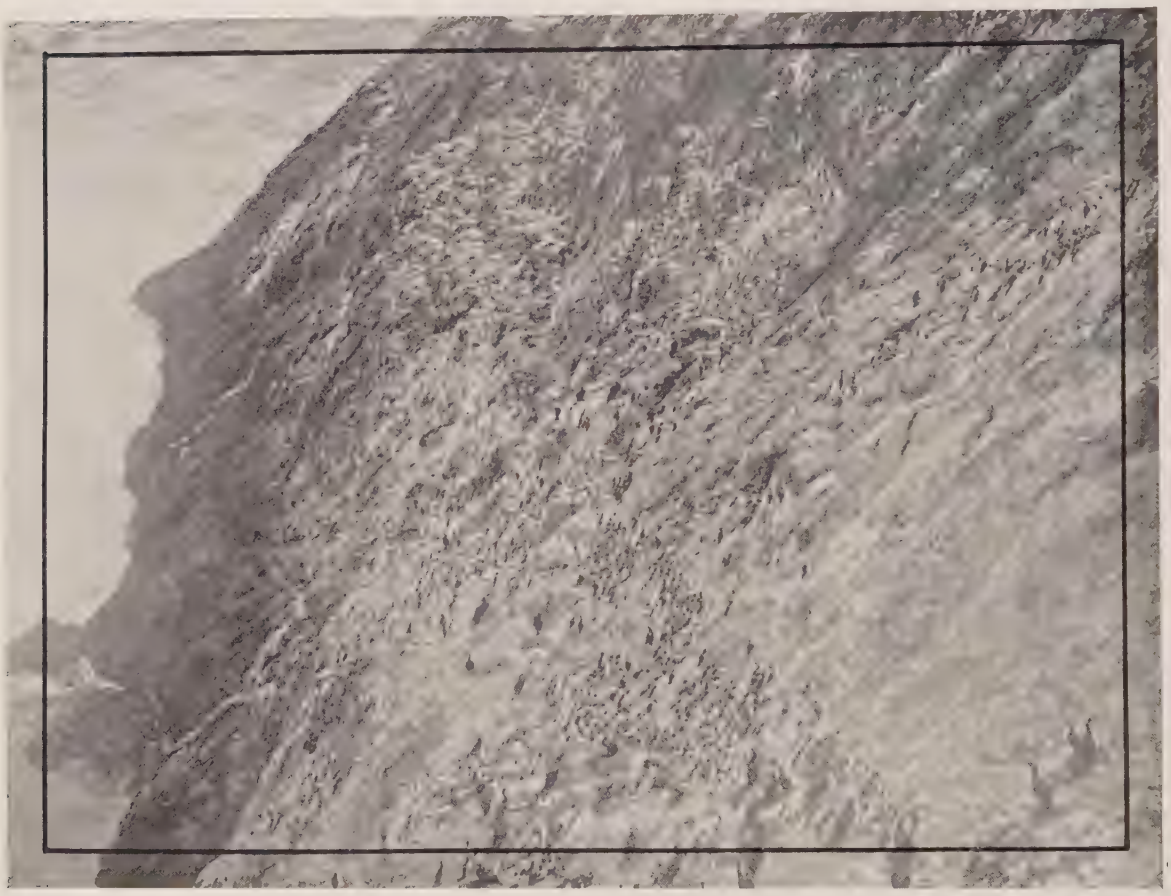


Photo by the Author

THE ANCIENT STRONGHOLD OF THE RACE

BREEDING LEDGES OF CALIFORNIA MURRES ON THE NORTH SLOPES OF THE SOUTHEAST FARALLON
BRANDT CORMORANTS IN THE FOREGROUND

is no joy like the joy of ornithological conquest on a sea-girt isle. The Murres come first in interest, and intent upon the Murre ledges we hasten by the clamoring gulls or crowd through a colony of croaking shags. At its best a Murre ledge presents a solid mass of birds, for the males spend much time ashore in company with their mates. Upon approach, however, the males detach themselves and resume anxious circlings in the

air, while the females remain huddled together, shifting uneasily upon their eggs, or backing away from the nearest ones, uttering apprehensive *hows*. All the birds in turn bow extravagantly, using only their heads and sinuous necks, and so frequently that a colony viewed from above looks something like a grain field under a breeze.

If the intruder does not press his advantage too hotly, those that have retreated from their eggs make shuffling feints at return, aided occasionally by their wings. Those that have found their eggs bend low to inspect them, or use the bill to assist in thrusting them between their legs. Others pause now and then to yawn or to stretch the wings, beating them rapidly three or four times before refolding. This is when the birdman seats himself on the white-washed ledge, Turk-fashion, places the camera in his lap and begins to shuffle forward like a legless beggar, "snapping" momentarily. The strain of approaching danger begins to tell on the Murrine nerve; but when the last mother has fled, we have before us such a varied assortment of eggs that regret is lost in wonder.

Taken on Carroll Islet, off the coast of Washington *Photo by the Author*
EXPOSED LEDGES

Murres' eggs are the Majolica ware of every bird-egg collection. In ground-color varying from pure white and delicate grays to beryl-green or even sea-green, they are speckled, splattered, blotched, and daubed with browns and blacks of a hundred shades. The more lightly marked specimens may have nothing by way of ornamentation beyond faint vermiculations of pale oil-green and tawny olive, or else tiny irruptions of sordid lavender and Indian purple; but others may be scrawled like a blackbird's egg with purplish blacks, or buried, like a hawk's, in a smudge of chestnut-rufous. One specimen in the M. C. O. collection exhibits a five-rayed rosette of carob-brown on a whitish ground. Another bears a maze of

arabesques which it would vex Mohammed's self to read. A third carries a pattern in lilac which must have cooled a long age in the tomb of some Egyptian princess.

It would appear highly probable that this variety is introduced by nature to facilitate recognition on the part of the birds, whose property might otherwise become hopelessly confused or lost. Certainly no two adjacent eggs are exactly alike, and the differences are usually so striking that a birdless ledge looks like an oölogical bouquet. These differences, moreover, are probably constant as between given birds. At least we found by experiment in 1907 that if a handsomely marked egg were removed, another of the same type might be expected in its place from one to three weeks later.

The peculiar shape of the egg, big at one end and little at the other, insures that the egg when disturbed shall roll in a small circle. In fact,

Taken on the S. E. Farallon

Photo by the Author

A REFUGE IN A TROUBLED SEA

in the "fittest" specimens—fittest, that is, to survive—the little end marks the center of a circle whose radius is the longer axis of the egg. This provides for maintenance on narrow ledges under ordinary circumstances; but a sudden flight of the Murres is bound to precipitate some of the eggs, whatever their shape.

Taken in Washington *From a photograph, Copyright 1907, by W. L. Dawson*

THE AWKWARD SQUAD

Not only are bare rocks and ledges utilized, but eggs are deposited under projecting stones, in crannies, caves, or even old puffin burrows. When the birds nest in sheltered situations, one pays a fearful price for close acquaintance. A Murre rookery is not so bad where the purifying rains have access to it, but the stench of a protected cave is overpowering. Eggs are sometimes so encrusted with filth as to be immovable, and fledglings are born into conditions which would shame harpies.

Apropos of this indifference to sanitation may be mentioned the birds' preference for White-crested Cormorants, a favorably situated nest of the latter being almost sure to attract a small group of nesting Murres to its immediate vicinity. What compensating advantage this arrangement may afford them we do not know, for they are certainly doomed therein to a dismal martyrdom as targets for the Shag's impartial distribution of whitewash. Moreover, a hobbledehoy cormorant is likely to become very much excited over the advent of a birdman; whereupon, clamorous of escape, he goes stravaging over these mild-mannered satellites with exquisite ruthlessness. I have seen a group of Murres bowled over in this fashion like ten-pins, not once but three times, after which the birds chiefly aggrieved managed to extricate themselves from the tangle, and made off grumbling.

Murre chicks are not provided with abundant down, like baby puffins, or even guillemots. They are scantily supplied, instead, with a stubby

sort of down, white below, and black, varied by a sprinkling of stout white hairs, above,—all very short. They are therefore shivery little

Taken in Washington

A NIAGARA OF MURRES

From a photograph, Copyright 1907, by W. L. Dawson

things, and require constant brooding. It is on this account that the anxious parents venture back, singly and by groups, as soon as the armed terror begins to retire. In preparing to alight, the bird's body is brought

into a vertical position, the feet are extended to the utmost to act as brakes, and the head is thrust forward as much as possible to guide these operations, which are imperfectly correlated at best. Occasionally, a bird fails to effect a landing with ease, or at least fears failure, whereupon it turns instantly and glides downward upon extended wing, preparatory to a new trial.

As we finally withdraw and the timorous ones come back, there is a ferment of readjustment on the ledge. Lost chicks pipe shrill inquiry of every bustling matron, and if mistaken, are received with spiteful jabs from bills as sharp as thorns. When, after much adversity, the right mother is found, the chick is promptly thrust between her legs, where the accommodations seem ridiculously inadequate. Fortunately, the chicks are not required to remain for long in this bedlam nursery. At an early age they are conducted—*carried* according to some authorities—to the water. Here they take up in high spirits the herculean task of conquering the mighty deep, and we know little more of their life history until they are ready to haul out again in the following, or perhaps in the next succeeding, spring.

The California Murre's notes consist chiefly of a mumbled and apologetic *ow ow*, or a louder *arry* of protest; but occasionally the birds explode in stentorous *kerawks*, absurdly out of character with their mild eyes. The name *arra*, which is applied to a closely related species in the North Pacific, is manifestly imitative.

Scattered colonies of Murres exist all along the coast-line as far south as Prince Island (off San Miguel), but their aggregate population is trifling in comparison with the northern colony, which for unknown generations has maintained itself upon the Farallons.

In the palmy days antecedent to the arrival of the gold seekers, these Farallon rookeries, or, more properly, *loomeries*, rivaled those of Alaska in importance. But the Argonauts brought keen appetites. Food was scarce in the early days, before agriculture had been developed. The presence of so much easy meat at the mouth of the Golden Gate was not likely to be overlooked. By 1850, the robbing of the Murre ledges had become systematic, and the Farallon Egg Company, the famous "egg trust," was formed for the purpose of supplying the San Francisco market. That the venture was a financial success there can be no doubt. Dr. Heermann, writing of the situation in the early Fifties, says, "The traffic in the eggs from this place to San Francisco and inland reaches the value annually of between one and two hundred thousand dollars".[1] According to another authority "more than five hundred thousand eggs were sold in less than two months in 1854—all collected in one limited portion of

[1] Rep. Pac. R. R. Surv., Vol. X., pt. IV., No. 2, pp. 75, 76.

South Farallon Island. And, 'in the opinion of the eggers, not more than one egg in six of those deposited on that island was gathered.'"

The history of the Farallon egg traffic deserves a volume, whereas we have only a few inches of space. It is difficult at this late day to form

Taken on the Southeast Farallon *Photo by the Author*

MURRES' EGGS

any adequate conception of the number of birds involved or of the ruthlessness displayed by the looters. Their motto was "all the traffic will bear," and the devil take the birds. Whereas the toll of 9 years had averaged twenty-five thousand dozen a year up to 1873, it fell away thereafter to fifteen thousand. By 1896, when Mr. Leverett M. Loomis visited the island, the picking had fallen to 7645 dozen. An alarm raised by this competent observer led to governmental interference, and in the following year all traffic in eggs was forbidden, and the islands were placed under the jurisdiction of the Lighthouse Board, a branch of the Treasury Department. In 1918, jurisdiction over the birds was transferred to the Department of Agriculture, and the policy of absolute protection will doubtless be maintained.

The infamous egg traffic is a thing of the past, but the Farallon rookeries have never recovered. Birds, which in fifty years had been called

upon to furnish the market some twelve million dozen fresh eggs, were not able, in spite of protection, to cope with new foes nor to stand up under the onslaughts of an ancient enemy, the sea gull, himself a notable beneficiary of protection.

When I visited the Southeast Farallon in 1911, for two weeks, I found about twenty thousand California Murres terrorized by about four thousand Western Gulls. Perhaps the gull has his uses, and he is a beauty; but so far as restoring the ancient prestige of the Murres is concerned—why, I would as soon undertake to raise chickens and skunks in the same enclosure. The case would not be so bad on an uninhabited island, for Murres en masse are proof against the assaults of gulls even. But the Southeast Farallon supports an increasing population of government employees, lighthouse keepers, weather men, wireless operators, etc.,

Taken on the S. E. Farallon *Photo by the Author*

A DIFFICULT PASSAGE

and these poor exiles have to stretch their legs once in a while. At the approach of a human the apprehensive Murres edge away, and the gulls swoop down to glean the uncovered eggs and to urge the Murres to further flight.

Our own mission, that of providing material for a habitat group in the California Academy of Sciences, although carefully safeguarded, was necessarily somewhat destructive. On the 20th of May, very early in the season, I ventured to disturb only one small colony of Murres, determined to ascertain the state of breeding. The birds, some 200 of them, moved off, hastily enough, and disclosed only 18 eggs. I had scarcely withdrawn when the gulls poured down upon the rocks and cleaned up the eggs in a trice. They seized them in their bills without difficulty, but let them fall again upon the rocks by way of getting at the contents. Some eggs were strong enough to resist this treatment, and such the gulls seized again and again and dropped from an increasing height, until the object was accomplished. Several gulls would lick up the contents of a single smashed egg; and although there was some squabbling, there was no attempt to escape with booty to some undisturbed spot, as would have been the case with a chunk of bread or meat.

The Murres are evidently very much attached to a given situation, once chosen. In no instance did I notice a diminution in numbers on the ledges most disturbed, but rather an increase. For instance, a certain flat-topped spur on the extreme west had been sacked just previous to our arrival. We visited it three times, uncovering, to our regret, over eighty eggs on the occasion of our last visit—yet this rock was swarming the day after, and the number of birds had doubled by the time we left. There was no doubt, either, that the birds on the disturbed ledges were increasingly apprehensive and wild. In going after the Brandt Cormorants under the umbrella tent we created such uneasiness in a certain populous colony (of say 200 pairs) which we had to pass, that we determined to sacrifice it and so rushed it. Ninety-seven eggs were exposed, all fresh or nearly so, and these we took. Twice thereafter we had occasion to pass the same way, and found it necessary to advance on the double quick to beat the gulls to the uncovered eggs. In fact the last time the gulls did get in first. Yet there were twice as many birds on the ledges the last time, and I am persuaded that our depredation made no more than a momentary difference. Moreover, and this point will bear emphasis—confidence undoubtedly increases with the advance of incubation. The Murre just emerging from a winter spent in the open ocean is a very skittish fowl. She is *thinking* of laying an egg; but Oh, Mercy, no, not now! When she is gravid with approaching maternity, she hates to move, but she will at whatever risk to self and posterity. Three weeks of brooding, however, will make her defiant of danger. In other colonies and upon more than one occasion I have stroked the sitting females with the hand.

To my great regret actual statistics are not available, but there is no doubt that the birds "haul out" on the ledges several days, perhaps ten

days, before oviposition. The egg, so immense for the size of the bird, is matured ashore. Indeed, the weight of the burden often renders the bird quite helpless and unable to fly. My heart ached for some of the mothers who, assaying flight, went bumping and floundering over the rocks instead; and I greatly fear that once dislodged the gravid female is never able to return with that burden. One caught by hand on level ground, where escape by flight was impossible, we dissected. The egg was placed in the oviduct *little end down* and must have been quite ready for extrusion. The pigment, although "wet," soon dried, and the egg cannot be told today from one taken from the ledge. But our chief curiosity was as to the development of the other ova. There was no sign whatever of activity, and the second in succession could not have been picked out from among her tiny sisters. Yet it is perfectly certain that such a succession had been designated, and that in the event of disaster to the first, another candidate would have been put upon the ways and rushed to completion within three or four weeks.

But lest we should overemphasize the destructiveness of the Gull, I will quote a page from field notes made on the spot: "California Murre, Farallon Ids., June 1, 1911. After all, the gulls do seem to have a certain respect for a Murre beak, especially when wielded in a righteous cause. The Murre colony, which occupies a certain outlier on the north side of the west end, is of the timid sort and as often as a human

Taken near Santa Barbara AN OIL-SOAKED MURRE *Photo by the Author*

approaches but distantly on the trail, they begin to fly and climb. Today, instead of passing by, I sat down to watch with 8-power binoculars. An egg lay temptingly upon the lower ledge and a gull soon settled to investigate. He contemplated the prospect carefully and gave the egg a quick dab, which sent it rolling into a more convenient position. Then he struck the egg with his beak, broke it open where it lay, and proceeded to devour the delicious contents. Presently a Murre flew past and the gull flinched. Then the Murre returned, struck at him from behind, and put him to flight. Then she waddled to her own egg a foot or so away, and tucked it under her with show of satisfaction. The gull returned to a near-by perch but the sitting guillemot brandished her beak menacingly and the gull kept well out of reach of it. Other gulls were interested by this time and several tried a hand, knowing that the Murre was alone, but when it came to a showdown none dared to try conclusions. Then the first gull returned to his original feast, but another Murre came hurrying and tumbling down the ledge and made at the gull with such force that he quit instantly. The newcomer exhibited a proprietary interest in the broken egg, examined it carefully but did not touch it. Another Murre coming up to look was warned off with menacing gestures, but a third arriving at this juncture, gave the egg a hasty glance, seized it by a broken edge and tossed it up the ledge a foot or so. Then she waddled after it, tucked it under her and settled to the task of incubation as if nothing had gone wrong. There she sits even now, without giving evidence of discomfort. The first bird who examined the egg was evidently her mate, and when the gull returned once more he launched full at the robber and fairly knocked him off the ledge."

If, then, the testimony as to the destructiveness of the Western Gull seems not altogether overpowering, there can be no doubt of the consummate mischief wrought by the prevalence of crude oil. For two decades now it has been the practice of oil-carrying ships, "tankers," to heave to and clean out before entering the Golden Gate. To be sure the practice is illegal, but when does a great corporation stoop to regard so trifling a thing as the law? And if the necessity were explained to them, what average lot of sea-faring men would regard the welfare of a few bobbing sea-fowl? *Commerce* is master and the interests of men are subsidiary. Well; the Murres are nearly done for. The birds must swim, and they must appear for breath upon the surface of the water, where the loathsome crude oil attaches itself like pitch to their immaculate plumage. It smears the belly, it engages the flight-feathers, it impedes action. The frightened bird drags itself ashore to cleanse its plumage. But all it succeeds in doing is to involve the alimentary canal in the slimy infection. Purging and starvation follow, and the lawless tankers have nearly made a birdless waste of a region which was once a wonder of the scientific world.

No. 298

Tufted Puffin

A. O. U. No. 12. **Lunda cirrhata** (Pallas).

Synonym.—Sea Parrot.

Description.—*Adult in breeding plumage:* Sides of head, narrowly, extreme forehead and chin white; the area continued backward over and behind eye in lengthened, undulating plume-tuft of close-set, silken feathers, changing posteriorly to deep straw-yellow; general color of remaining plumage black, bluish and glossy above, sooty brownish below, a little lighter and grayer on belly; wings and tail black, browning on inner webs; lining of wings smoky gray. Bill highly compressed, only one-third as wide as depth at base of nostril; outline of culmen doubly convex, the distal portion of upper mandible marked by two or three curved grooves convex backward; distal portion of bill vermilion, basal plates yellowish horn-color; iris horn-color to white; eye-ring vermilion; feet vermilion with black nails. *Adult after the breeding season:* Without crests; lighter, sooty-gray, on belly; white of face replaced by dusky. Bill smaller and dark-colored basally, seven deciduous plates having been shed; iris "pale blue"; feet "pale salmon flesh-color." *Immature:* Like adults in winter, but bill smaller and weaker, without grooves and saddled at base with soft dark skin. *Downy young:* Nearly uniform slaty black; first feathers on belly pure white. Bill black with outcropping of dull red near the middle. Length of adult: 381-406.4 (15.00-16.00); wing 196.9 (7.75); tail 69.9 (2.75); tarsus 33 (1.30); bill (chord of culmen) 61 (2.40); greatest depth of bill 48.3 (1.90).

Recognition Marks.—Appearing crow size by reason of relatively short tail; black plumage with white face and tufts and large vermilion bill unmistakable in breeding plumage; size and compressed shape of bill still distinctive in winter.

Nesting.—*Egg:* Single, white, often marked obscurely with pale brown and violet-gray; of variable shape, sometimes nearly equal-ended, sometimes pointed at one end, something like a Murre's; laid at end of burrow in earth-bank or, more rarely, in crevice of rock, or in shelter of brush. Av. size 72 x 49.2 (2.83 x 1.94); index 70. *Season:* April–July.

General Range.—Coasts and islands of the northern Pacific Ocean and Bering Sea with adjacent portions of the Arctic Ocean. Breeds from Cape Lisburne, Alaska, and Koliutschin Bay, Siberia, to the Pribilov, Aleutian, and Commander Islands, and south along the Pacific Coast of America to California. Ranges south in winter to Lower California.

Distribution in California.—Common resident upon the ocean, and breeding south upon suitable soil-topped islets to the northern islands of the Santa Barbara group. Abundant on the Farallons. Still breeds sparingly on Prince Islet and Anacapa Island, but is no longer found upon Santa Barbara Island, its southernmost recorded breeding station. Occurs a little further south in winter, but usually puts out to sea at that season.

Authorities.—**Newberry** (*Mormon cirrhatus*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 110 (Farallon Ids.); *Stejneger*, U. S. Nat. Mus., Bull. no. 29, 1885, p. 43, pls. 1, 2 (Commander Ids.; habits, bill structure and color, etc.); *W. E. Bryant*, Proc. Calif. Acad. Sci., ser. 2, i., 1888, p. 27 (Farallon Ids.; desc. habits, nest and eggs, etc.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 18 (s. Calif. ids.; habits, occurrence, etc.).

The Tufted Puffin

Taken in Washington *Photo by Lynds Jones*

A QUAINT FOWL

TO THOSE who have been fortunate enough to visit some romantic isle off the North Pacific shore, these quaint fowls make an irresistible appeal of interest.[1] "Sea Parrots" and "Jew Ducks" the sailors call them; and we should all be inclined to poke fun at them for their outlandish head-gear if the situation were not so perfectly redeemed by the impeccable behavior of the birds. Masks are essentially ridiculous; but these "Masked Puffins" will not countenance laughter, and the grave solemnity of their regard brings you soon to respect, and then to admiration. For my own part, I confess a positive affection for these droll Quakers of the sea.

Puffins, in common with other species of the *Alcidæ*, spend the winter upon the ocean, and are seen near land only when the buffeting of some storm of unusual severity strews the sand with bodies of dead and wounded. As spring advances, these birds are provided with an extraordinary array of nuptial ornaments and appendages. Males and females alike receive, in place of dull black feathers, a white facial mask; and this is prolonged behind from either side into long, waving feather "horns" of a rich, deep straw-color. The eyelid becomes a brilliant red; and the great red beak, always stout and strongly compressed, is further augmented, basally, by a new set of horny plates of a dull oil-green or delicate horn-color, and these, in turn, exactly match the irides in tint. The feet also become bright vermilion, instead of a pale salmon.

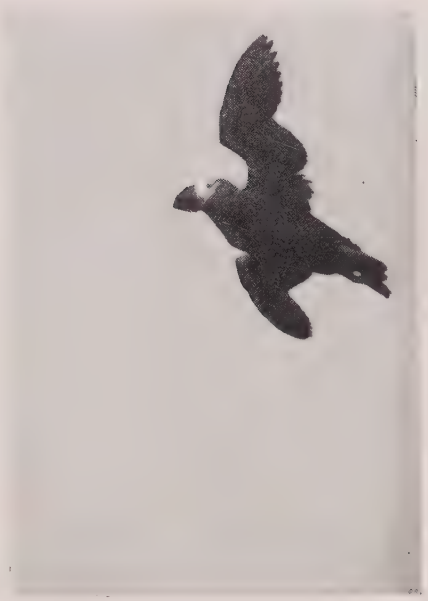
Thus gaily caparisoned, the Tufted Puffins repair to the grassy, sloping hillsides of the rocky islets which constitute their summer homes, and proceed to renovate the old nesting burrows, or else dig new ones. They work intermittently at this. Stejneger, on the Commander Islands, noted that in the early days of the season the Puffins spent only one day ashore in alternation with two days at sea. It is probable, therefore, that the birds engage in the evolutions of courtship during these "sea-days," for I have never seen anything but the most circumspect behavior ashore.

It is difficult to exaggerate the gravity of these tranquil birds, absolutely silent on all occasions save when caught and harassed, when they may emit a low, raucous groan. They spend much time standing demurely at the entrances of their burrows, and the nearest approach to

[1]The substance of this account has already appeared as "Educational Leaflet No. 69," of The National Association of Audubon Societies (Bird Lore, Vol. XV., July-August, 1913, pp. 268-271), and the author is indebted both to Bird-Lore and the National Association for permission to reproduce.

levity one ever sees is the accidental shaking of the pendent plumes when the bird turns its head.

If a hillside colony is approached suddenly from shore, the standing population, presumably males, pitches downward to sea by a common impulse; while the nest occupants come shelling out by twos and threes and dozens, as one traverses the honeycombed earth. Once a-wing, the Puffin returns again and again to satisfy his curiosity, employing for the purpose great horizontal circles or ellipses, and slowing up a little at perigee. Or, if the nesting island be a small one, the Puffins will circle it a score of times. You know that the birds are justly apprehensive, but there is something so weird and funereal about the whole performance!



Taken on the S. E. Farallon *Photo by the Author*

FLAGGING OUR ATTENTION

Taken on the S. E. Farallon *Photo by the Author*

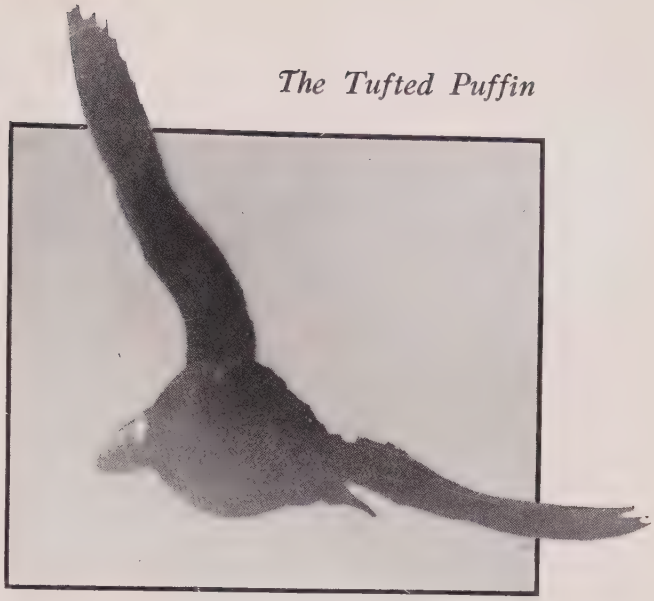
THE TUFTED COULTERNEB AT HOME

Taken on the S. E. Farallon *Photo by the Author*

TAKING OFF

Later the Puffins settle upon the surface of the water until the sea is black with them. Each bird dives, if only for a moment, upon the instant of alighting; and it may be that they find it difficult to effect this exchange of medium without a spill. Rising also requires an effort, desperate, if the sea is smooth, but easier in proportion to the increasing strength of the wind. Once the invader has left, or else secreted himself, the Puffins return rapidly to reclaim the cooling eggs, or to take up the sober vigil at the burrow's mouth. Each alights with uplifted wings held well back. The wings are also lifted from time to time as though to rest them, and they are brought into requisition as balancers whenever the bird attempts to walk. Be the going ever so easy, the Puffin shifts about as gingerly as the slack-wire performer.

A Puffin's bill is so remarkable a creation that a glance at its structure may not be out of place; though as to what may be the necessity of this powerful crushing organ we are frankly ignorant. The bird is not a shallow-water feeder, and so has no need to reduce bivalves. Moreover, in the breeding season it seems to subsist upon small fish, especially the sand launce (*Ammodytes personatus* Girard), which are easily taken by the slender-billed Murre. And, if the bill were designed to cope with some stubborn viand of the middle sea, why reduce its size in winter?

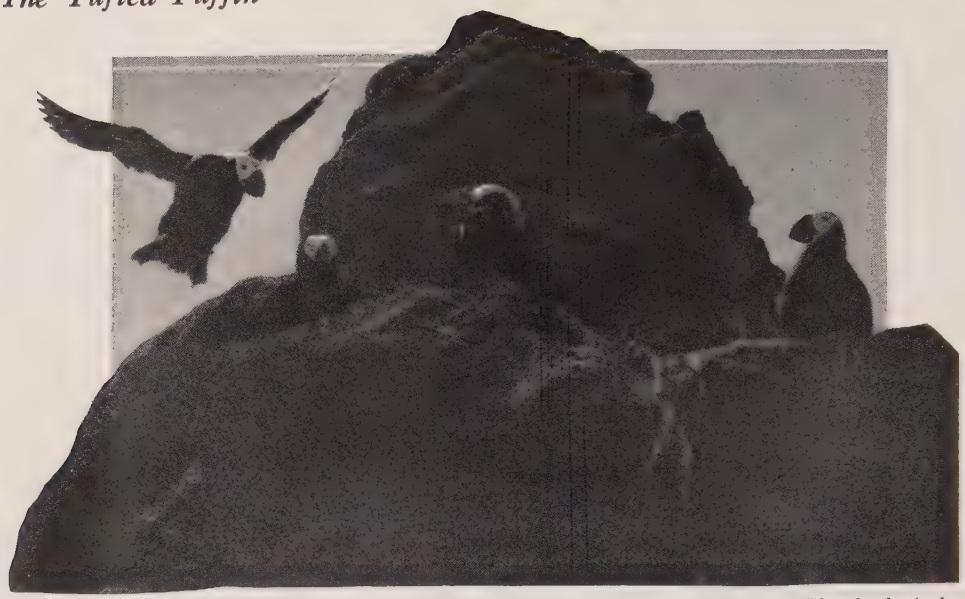


Taken on the S. E. Farallon *Photo by the Author*

A SHARP TURN

We do not know. But we do know that the Puffin's bill is wonderfully contrived of some eighteen plates (with underlying membranes), and that of these, sixteen, including "rosettes, lamellæ and selvedges," but chiefly the olive-green basal plates, are deciduous,—they fall away, that is, at the end of the breeding season. Their place is taken partly by underlying feathered tracts, and partly by an underlying horny plate of a deep brown color; and the basal dimensions of the bill are much reduced. Accompanying these changes is a disappearance of the white facial mask with its plumes, and the entire head becomes a uniform blackish color. The vermilion eyelids fade to a sickly salmon-color; and the irides, if we may trust scanty observation, become pale bluish.

A forty-five-degree slope of soil is the characteristic nesting-site of the Tufted Puffin. Here tunnels are driven at random to a depth of three or four feet, and so close together that once, on Erin, one of the Olympiades, by placing a foot in the entrance of a burrow and "fetching a compass," I was able to touch with the hands the entrances of twenty-five others, apparently occupied. This may have been an unusually populous section, but, if we reckoned at half that rate, an acre of ground would carry 2,700 burrows. Hard or rocky soil is not shunned in prosperous colonies, but many efforts here are baffled outright, and "prospects" are at least as numerous as occupied burrows. Elsewhere the top soil on precipitous clinging ledges may be utilized, or else crannies, and rock-hewn chambers. Upon the Farallon Islands, these birds have little opportunity for digging in the earth, and little necessity for providing fresh burrows, for crevices and cubby-holes abound. These are, for the most part, of an ample and substantial character, as though well maintained, and most of them have, doubtless, seen use measured by cycles rather than by generations. Many eggs, and sitting birds as well, are visible from the outside; while some of the nesting-sites are nothing more than the innermost recesses of niches and caves occupied by the Murres. On the Farallons, also, there is a fierce, albeit silent, competition between these silent



Taken on the S. E. Farallon *Photo by the Author*

THE LANDING

birds and the rabbits which swarm over the rocks. I have seen impulsive bunnies which, fleeing from fancied danger and taking refuge in the first burrow at hand, emerged more hastily than they went in. The Tufted Puffin is a dangerous as well as a determined foe, and a bite from that rugged beak will cut to the bone.

Although equipped with so formidable a weapon, the birds, in digging their burrows, appear to depend upon their feet. These are provided with nails as sharp as tacks, and the "finish" of the nesting-chamber usually exhibits a criss-cross pattern of fine lines. Upon a rocky islet known on the charts as "Off Trinidad Rock" I found the Puffins nesting in a conglomerate rock in tunnels from three to six feet long. The conglomerate must have been softer where not exposed to the air, but upon the exposed surfaces near the orifice the cement had hardened, so that I could scarcely dislodge a single pebble with my steel-shod pike.

Long grass and dense thickets, as of salal, salmon-berry bushes, or dwarf spruce, occasionally afford refuge to birds hard-pressed for room. Here the Puffin, starting from some exposed edge, drives a tunnel through the matted vegetation and deposits its egg upon the surface of the ground, in shade almost as intense as that afforded by the earth itself.

Only one egg is laid, dull white as to hue, with faint vermiculations of brown and purplish. Because the nest-lining is of the scantiest, a few salal leaves or bits of grass, the egg is often so soiled by contact with the earth as to pass for dingy brown.

The baby Puffin is your true *Puffin*, and it is undoubtedly he who gave this trivial name to the group. He is, indeed, a mere puff-ball of down, for he is densely covered at birth with down at least an inch long and you could blow him away (Pouf!) if he were not so fat and anchored in a hole. The down is of a uniform dull slaty black, and the only touch of color about this infant pin-cushion is a showing of dull red near the middle of the otherwise black bill.

Taken on the S. E. Farallon *Photo by the Author*

HIS HONOR, THE TUFTED PUFFIN

In assuming the first plumage, the juvenal shows many of the characters of the winter adult, but it is whitish or light gray below. With the approach of its first spring, it takes on first the feather tufts, of a dull brownish hue, then the white facial mask, with corresponding bill changes; but whether or not the yearling bird breeds, is an open question. The non-breeding birds remain at sea, where they are nearly as exempt from scrutiny as are baby sea-serpents.

The Tufted Puffin enjoys the widest breeding range of any bird in the North Pacific, except the Pigeon Guillemot; and although not so thoroughly distributed as that species, it is undoubtedly far more abun-

Taken in Washington *Photo by the Author*

A PUFFIN BANK, FROM ABOVE

dant. On the American side, it breeds as far south as the Santa Barbara Islands, and as far north as Cape Lisburne, in northwest Alaska. It is, however, of comparatively rare occurrence in Arctic waters. On the Asiatic side, its breeding range extends as far south as Japan; while its center of abundance is generally conceded to be the Aleutian Islands. Deposition of eggs occurs as early as May 1st, in southern California, and as late as August 1st, in the northern latitudes; but fresh eggs may also be found somewhere from June 1st to June 20th at any given point in its breeding range. Thus, on certain islets off the west coast of Washington, I have found the Puffins punctual to a day, and depositions occurring with practical uniformity; whereas, on the Farallons, 1911, there was a steady increase in numbers from the 1st to the 28th of May, with a few still to be heard from on June 3rd. The winter range of this species comprises the open ocean, and the birds are occasionally driven shoreward along the Aleutian chain and the coasts of approximate latitudes.

From time immemorial, the natives of the North Pacific islands have placed large dependence upon the Puffins, Tufted and Horned, to supply both food and clothing. Advantage is taken of the bird's inability to alter quickly its course of flight—your Puffin is no dodger—and large

numbers are caught annually by means of small nets mounted on poles,—a sort of glorified butterfly hunt. The Puffin meat is not distasteful, as sea-birds go, although white men do not care for it. More important to the native Aleutian is the uniform tough skin, which goes into the making of parkas, the famed feather-coats of the North. These garments, each requiring the use of from forty-five to fifty Puffin skins, are made up feather-side in, and are nearly impervious to cold.

With the natives we shall, of course, have to be very patient until such time as the channels of distribution have been perfected, so that they they may have Gloucester codfish, Yakima potatoes, and Ventura beans for food, instead of the flesh of "Toporki" (the Commander Island name for Puffin), and garments made of good Irish wool, instead of flimsy bird-skins. With the fishermen (imported) we shall have to be very firm, reminding them that Uncle Sam is willing to subscribe liberally for fish spawn, to fill the ocean if need be, so that there may be indeed food for all, birds and humans; but very unwilling to see his guests assault the ancient rights of his feathered wards.

For ourselves, we need no economic excuse to cloak our interest in these quaint old-men-of-the-sea, the Tufted Puffins. Remote, unobtrusive though they be, they belong to us to study, to protect (as need arises), to enjoy. A visit paid to one of their breeding haunts is like a trip to fairyland, a real and tangible bit of romance. Such a privilege,

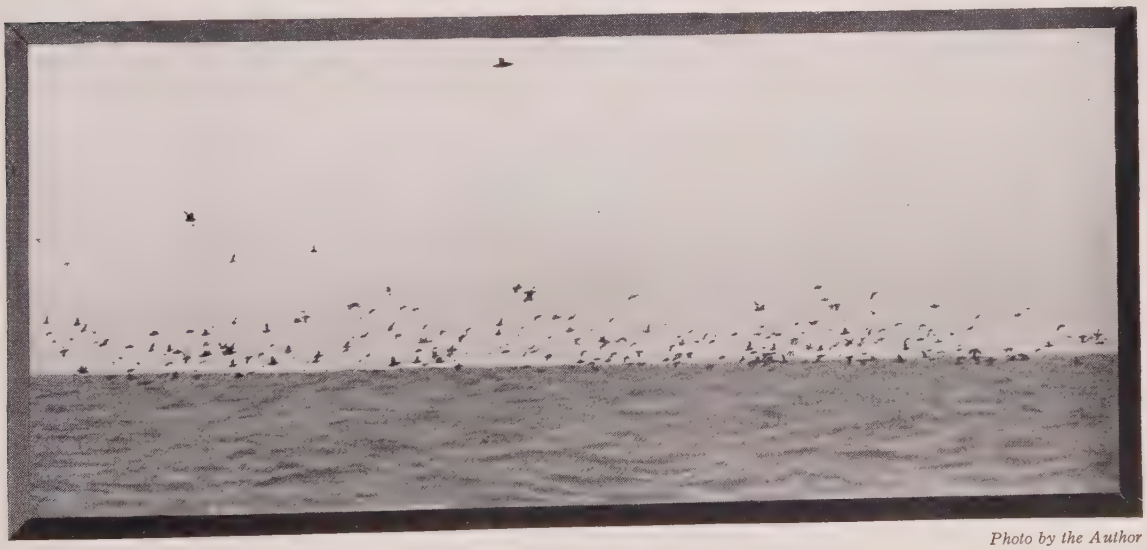


Photo by the Author

Taken off the coast of Washington

THE EXCURSION

PROBABLY THESE BIRDS ARE FOLLOWING THE MOVEMENT OF A SCHOOL OF FISH. THEY ARE NOT MIGRANTS, SINCE IT IS THE BREEDING SEASON, JUNE

properly exercised, is the inherent right of every American citizen, and should be safeguarded to our children for all time. The maintenance in full measure of these and other sea-fowl is so obvious an esthetic advantage to the race that no taint of commercialism ought to enter in, at any point, upon our consideration of them.

No. 299

Horned Puffin

A. O. U. No. 14. **Fratercula corniculata** (Naumann).

Description.—*Adult in breeding plumage:* Roughly, black-and-white. Crown, narrowing on forehead, clear hair-brown; sides of head, broadly, white, shading to brownish gray on sides of lower jaw and in post-ocular furrow; remaining upperparts and connected collar, passing forward to chin, glossy bluish black to sooty black; lining of wings smoky brown; a few dark feathers on flanks; remaining underparts pure white. Bill exceedingly compressed, one-fourth as wide as high at base of nostril; crossed near tip by two crescentic grooves convex forward; toothed on both mandibles, and bright vermilion throughout; rosette at angle of mouth bright orange; edges of eyelids red; fleshy excrescences proceeding from eyelid over and behind eye, the "horns," dull blue; irides brown; feet orange-red with duller soles. *Adult in winter:* Size of bill greatly reduced by shedding of seven horny plates; eye processes wanting; eyelids and rosettes paler; feet yellow. Length of adult 355.6-406.4 (14.00-16.00); wing 190.5-209.55 (7.50-8.25); tail 70 (2.756); bill (chord of culmen) 53 (2.09); maximum depth 44 (1.73); tarsus 31 (1.22).

Recognition Marks.—Crow size; black above, white below, with white face; head pattern distinctive even in winter, when remarkable bill is greatly reduced.

Nesting.—Does not breed in California. *Egg:* Single, ovate; dull white, often very faintly and finely marked with pale violet-gray and dull olive. Indistinguishable in size from those of *Lunda cirrhata*. *Season:* June–July 10.

General Range.—Coasts and islands of Bering Sea and contiguous portions of the Arctic and north Pacific Oceans; breeding from Cape Lisburne, Alaska, and Koliutschin Bay, Siberia, south to the Commander Islands, and east along the Aleutians to Glacier Bay, Alaska, and south, sparingly, to Forrester Island. In winter south to Kuril Islands and Queen Charlotte Islands; less frequently to coast of California.

Occurrence in California.—Of rare occurrence on the coast, at least as far south as Monterey. Probably fairly common on the open ocean.

Authorities.—**Bishop** (*Fratercula corniculata*), Condor, vol. xvi., 1914, p. 204 (Pacific Grove, Feb. 17, 1914, 1 spec.); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 97 (life hist.; desc. nest and eggs).

THREE "records" would give this bird a very slender claim upon our attention, were it not for the suspicion that the Horned Puffin is of regular occurrence off our coasts in winter. The Smith records, especially, would go to show that Horned Puffins may mingle at sea with our own Tufted Puffins, in the proportion of one to six. We cannot hope, however, for any first-hand knowledge beyond that afforded by a battered carcass tossed up from time to time by a repentant sea.

The species nests as far south as Forrester Island, Lat. 55° North, although at that extreme of its range the Tufted Puffin outnumbers it, according to Professor Heath,[1] some thirty to one. The northernmost colony reported on appears to be that on Chamisso Island, of which Dr. Grinnell has left the following account:[1] "On July 9, '99, I spent the afternoon and night on Chamisso Island. On this island and a smaller detached one bearing northwest from it, the Horned Puffins were breeding in immense numbers. Their nest-burrows were dug in the earth on top of the islands, principally on the verge of the bluffs. These burrows were from one to three feet in length, with an enlarged nest cavity at the end. The eggs generally lay on the bare ground, but there was often a slight collection of grasses between it and the earth. The parent bird was frequently found on the nest and would sometimes offer courageous resistance to being dragged forth, inflicting severe nips with its powerful mandibles. Where there were no rock slides on the side of the island, natural crevices and holes among the fallen boulders were taken advantage of for nesting sites. In such places eggs were to be found from the surf to the top of the island, and by crawling amongst the boulders many eggs were discovered, but often in such narrow crevices that they could not be reached. The birds usually flushed from their nesting places before the collector reached them, being probably warned by the vibration of footsteps on the rocks, which I noticed to be quite perceptible when one was in a narrow chasm. The eggs laid in these rocky niches were usually provided with a scanty bed of dry grasses. All the eggs secured were fresh and proved more palatable for the table than murres' eggs. In a series of fifty eggs of the Horned Puffin, there is considerable variation in size and markings. In the large majority the ground color is pure white, but in four eggs it is cream-buff. All the eggs exhibit shell markings, spots, blotches and in a few cases, scrawls of dull lavender. Five of the eggs one would consider at first sight immaculate, but close scrutiny discloses the shell-markings, though they are extremely pale and few in number. Eight eggs in the series have outer spots and fine dashes of isabella color, and one of them is very closely covered by scrawls and spots, with two large blotches of the same color."

It is this species and not *Lunda cirrhata* which has given rise to the

[1] The Condor, Vol. XVII., Jan. 1915.
[2] Pacific Coast Avifauna, No. 1, 1900, p. 6.

tradition of boisterous misconduct. Says Mr. H. W. Elliott, in writing of the birds on the Pribilovs:[1] "It is the only bird on these islands which seems to quarrel for ever and ever with its mate. The hollow reverberations of its anger, scolding and vituperation from the nuptial chambers, are the most characteristic sounds, and indeed the only ones that come from the recesses of the rocks. No sympathy need be expended on the female. She is just as big and just as violent as her lord and master."

No. 300

Horn-billed Puffin

A. O. U. No. 15. **Cerorhinca monocerata** (Pallas).

Synonyms.—Unicorn Puffin. Horn-billed Auklet. "Rhino."

Description.—*Adults in breeding plumage:* Upperparts sooty black or glossy brownish black; color shading insensibly on sides of head, quickly on sides of neck and breast, into dull sooty gray or smoke-gray of throat, chest, sides, flanks, and wing-linings; remaining underparts white, or white faintly washed with smoke-gray; shafts of remiges whitish basally, in proportions decreasing from outermost; a maxillary and a post-ocular stripe of lengthened, lancelinear, white feathers; bill orange, duller along tomia, black on culmen, a horny projection above nostril at base of bill about .60 (mm 15.2) high (from nostril); a small deciduous plate at base of under mandible; feet and legs yellow above, black below; irides hazel. *Adults in winter:* Without horny appendage and inframandibular plate; irides white. *Young of the year:* Bill much smaller than in adult; no white stripes on head; general plumage much as in adult in winter, but browner, and white of underparts washed or tipped with sooty-gray. *Nestlings* are covered with heavy slaty black down. Length of adult: 330.2-393.7 (13.00-15.50); average of 10 Monterey specimens: length 370.5 (14.59); wing 182.7 (7.19); tail 59.2 (2.33); culmen from base of horn 26.2 (1.03); depth of bill at angle of gonys 15.5 (.61); tarsus 29.4 (1.16).

Recognition Marks.—Teal size; horn (in breeding season), and white stripes of head distinctive in adult; dull plumage with size not likely to be confused in juvenile.

Nesting.—Does not breed in California. *Nest:* At end of burrow driven 5 to 15 feet in perpendicular or sloping sea-wall. *Egg:* Single, ovate, ovate-pyriform, or elliptical ovate; dull white, immaculate, or more commonly exhibiting traces of lavender, violet, or deep brown, in spots or scrawls. Av. size 68.6 x 45.7 (2.70 x 1.80). *Season:* May 1–June 10.

General Range.—Coasts and islands on both sides of the northern Pacific Ocean, breeding upon (at least) the Kuril Islands, and from Sitka, Alaska, south to Washington (Smith's Island, Protection Island, and Destruction Island). In winter south to Lower California and northern Japan.

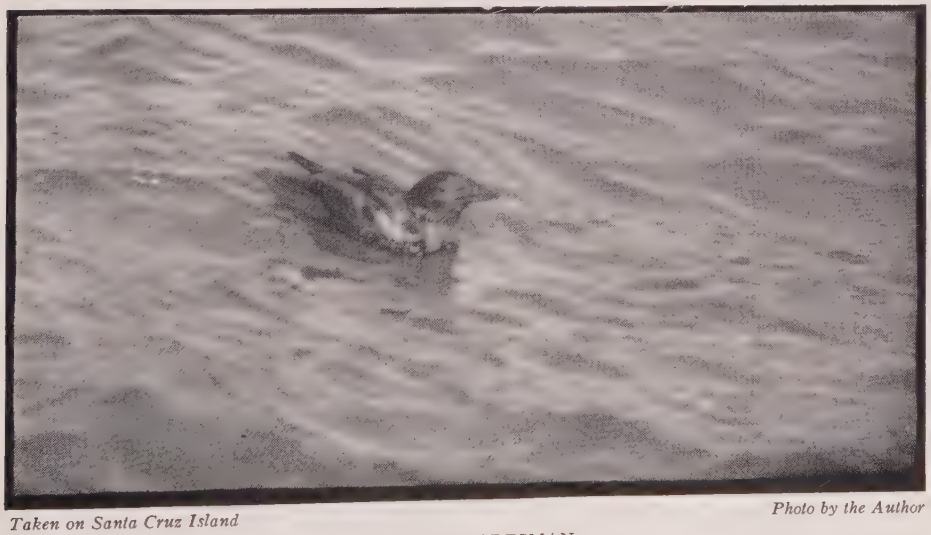
Occurrence in California.—Common resident in the ocean in winter, especially about the Santa Barbara Islands. [Stated by Heermann to have been found by him

[1] Report on the Seal Islands of Alaska, 1880.

in June breeding upon the Farallon Islands. It is significant, however, that Heermann did *not* find the Cassin Auklet (*Ptychoramphus aleuticus*), which now breeds upon the Farallons by thousands, but he expressly says of the latter, "They abound on these islands during the winter, but on my return in spring they had already left to pass their summer in more northern climes"!]

Authorities.—Cassin (*Cerorhina monocerata*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 905 ("California"); *Henshaw*, Auk, vol. ii., 1885, p. 387 (Santa Barbara and San Diego, winter; as to molting parts of bill); *Grinnell*, Bull. Cooper Orn. Club, vol. i., 1899, p. 18 (Catalina Id.; habits, food); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 19 (s. Calif. ids.; occurrence, etc.).

WE SHALL never be done, I suppose, quarreling with the bird names which an uncritical—or over-imaginative—generation has left us. *Cerorhinca monocerata* has been known in ornithological literature as the "Rhinoceros Auklet." The bird, however, is not an "auklet" at all, but a puffin (as its egg clearly shows); while the name "Rhinoceros" based upon the possession of a deciduous horny knob on the beak is, to say the least, a rather broad joke. The name Horned Puffin would have been more appropriate, but some other chap with a superheated imagination got ahead of us by tacking that name upon *Fratercula corniculata*, because, forsooth, it has a *fleshy* protuberance upon the upper eyelid! We shall have to fall back then upon the exactly descriptive designation "Horn-billed Puffin," and so have the terrors of nominal similarity, rather than



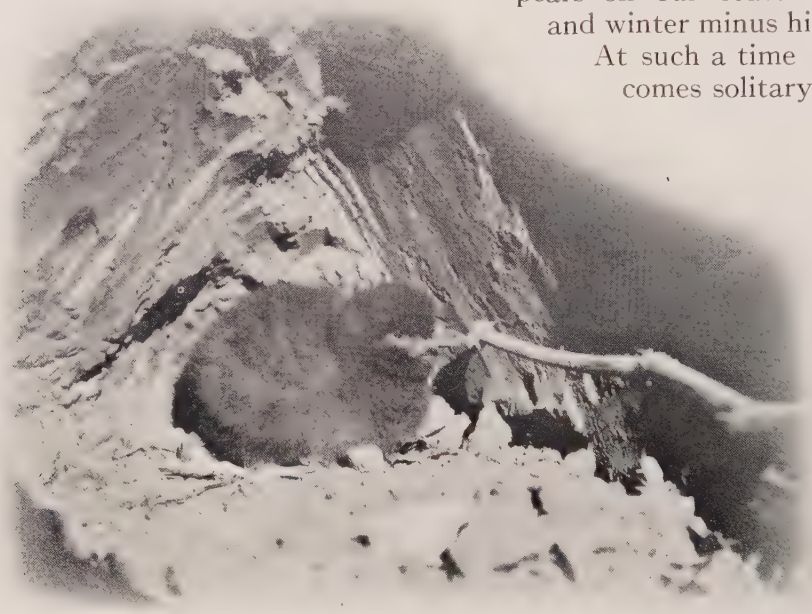
Taken on Santa Cruz Island *Photo by the Author*

A WILY SPORTSMAN

THE BIRD IS IN WINTER PLUMAGE: NOTE ABSENCE OF HORN AT THIS SEASON

consent to the shameless imbecility of "Rhinoceros Auklet." Or if, again, the urge of brevity shall force a compromise, we may suffer the name "Rhino," which actually obtains widely, to pass muster as the colloquial designation of this unique and quite unmistakable species.

Whatever may be the fashion of midsummer, the Rhino appears off our coasts in fall and winter minus his horn. At such a time he becomes solitary in his



Taken on Destruction Island *Photo by the Author*

A BLACK PINCUSHION
CHICK OF HORN-BILLED PUFFIN

habits and hunts well off-shore; or else haunts the rock-bound coasts of the Santa Barbara Islands. One we observed in mid-spring, April 14-17, 1915, on Santa Cruz Island, which showed a slight tumescence at the beak, suggestive of the approaching horn, but no appearance of the nuptial plumes upon the sides of the head. This bird hunted anywhere from the water's edge to a point a hundred yards off-shore. He was a stolid-looking creature, as motionless as a floating chip, when on the surface; but once below, he displayed the resolute energy of a torpedo. Once, he got caught in a breaking roller, and actually protruded for an instant from the wave's green wall, but, somehow, he managed to turn tail to the air and to swim back out of sight. His work took him very close to the rocks, however, and at a point where the waves swept without breaking squarely, we

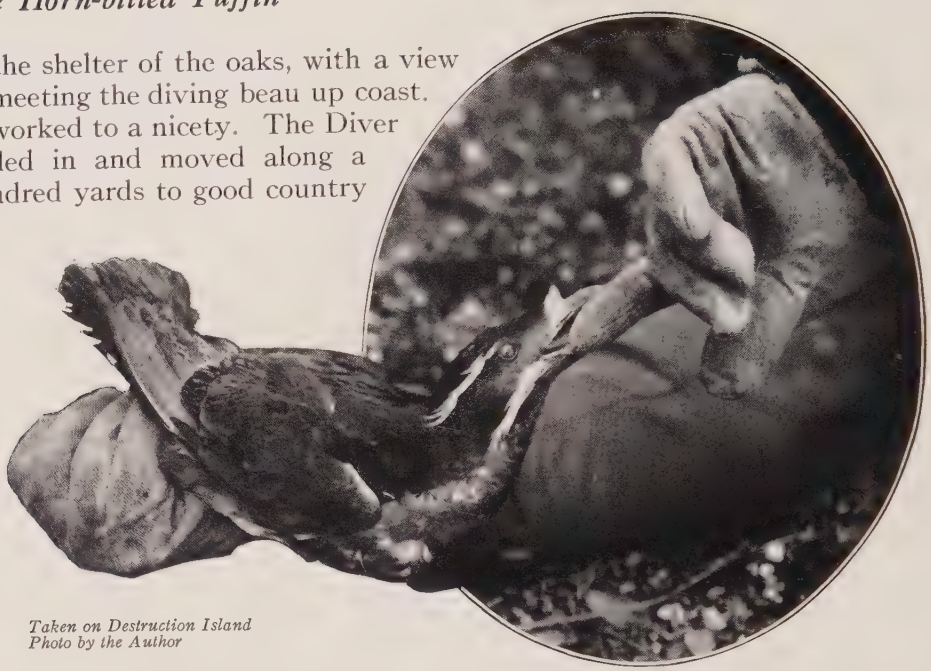
watched him in a cauldron of contending waters which threatened to dismember him. Upon reappearing at the surface, the bird first wagged his tail sidewise, to remove superfluous moisture, apparently, then sat rigidly with the foreparts somewhat depressed in the water, the head and bill horizontal, and the points of the wings and the tail sticking up at an angle. If the fishing was good, these rest periods lasted only two or three seconds, while the submergence lasted from twenty to thirty seconds in each case. In diving the bird pitched forward and kicked with the feet, which had remained, meanwhile, at right angles to the body, and at the same time he opened the wings part way, so as to catch the water with the first stroke. When pursued by the bird, its prey, apparently a tiny fish of some sort, would almost invariably escape by rising. It was almost as invariably seized at the surface, whereupon the bird, without pausing for breath, instantly retired, turtle-fashion, to the depths. In this way the puffin might break water accidentally half a dozen times before it was ready to come up for its rest interval.

"Santa Cruz Id., April 17, 1915. Ha! There is no sport like that of the bird photographer after all! By way of compensation for unrewarded efforts through a dull morning, the sun burned off the fog just after lunch and I went at it again. My first victim was a Red-breasted Merganser, surprised at close quarters as he was working at the very edge of the smashing waves. The next was the Horn-billed Puffin, who has adopted this stretch of coast, and whose fortunes I have been permitted to follow this week. He was in sight from camp when I started out this afternoon, but either he was wary or else the tide wasn't yet to his liking, for he lay offshore some twenty fathoms and would not dive. Finally, in despair, I ostentatiously quitted my hiding place on the beach, returned to camp, and then took a sneak over the hill

Taken on Destruction Island, off the coast of Washington *Photo by the Author*

A SULKY HEN

in the shelter of the oaks, with a view to meeting the diving beau up coast. It worked to a nicety. The Diver pulled in and moved along a hundred yards to good country



Taken on Destruction Island
Photo by the Author

GLOVES ARE RECOMMENDED

he knew (though it took him half an hour to do it) and then peeled off his coat, at it were, and dived in. I surprised him at close quarters and got in an exposure, No. 1. The Rhino was too dignified to scamper, but he quickly edged away and moved up coast fifty yards and began to work close in. Again I surprised him and this time he stood his ground. It was royal sport. I was simply trembling with excitement like a bird-dog whose master is about to shoot. Where in the boiling cauldron would he come up next? Here perhaps; no, there! And down he goes before I can swing on him. Once he came up within fifteen feet, but I missed him. Twice I got him fair as close as thirty feet, all sparkling with water and bristling with alertness. He gave me several square chances, and then edged off along the shore where the water was fairly seething, and I marveled that anything could live. Twice he came up within two feet of the rocks, and once he actually stranded on a ledge, not attempting to move until the water eased him. I followed again, and I give you but a faint idea of the thrill and glory of it all when I tell you that my legs were nearly too weak to carry me. Seven shots at a Horn-billed Puffin at work in the churning sea! And the shore-work was rough too. Once I took too big a chance,—the camera was heavy, and my foot slipped, with a nasty smash in prospect, throwing my whole weight unexpectedly on one hand. The thumb went over backward, but it held long enough to save my footing, and once recovered, I dashed on after

that blessed bird. Not much ornithology to learn that way, perhaps, but I came to regard that Rhino as a brother; and I think the bird's heart was touched, for when he found that I would not follow his last evasion, he returned, presently, and gave me a deliberate chance, well within range."

Of the nesting of this sportive bird, it is scarcely fair for a Californian to speak, since its southernmost breeding station is Destruction Island, off the coast of Washington. But three summer visits paid to that romantic isle make some mention upon the author's part imperative.

Destruction Island, unlike most of the Olympiades, is not a stubborn remnant of some ancient rocky headland, but is rather a detached fragment of a valley floor,—in fact, a chip of the prosy mainland block four miles distant. It owes its preservation to a series of outlying reefs, grim bones from which the sea has stripped the flesh, and is itself a phase of dissolution. On this account its top is level, while its sides are fresh-cut and steep, although a brave luxuriance of vegetation serves to retard, as it disguises, the progress of decay.

About this island of sixty acres gather a few memories of the human, a tragedy of discovery, a shipwreck or two, and latterly the brave, lonesome life of light-keepers. But these are matters of two centuries, a mere yesterday. Drop down behind the sea-wall out of sight of the friendly lighthouse, and you could forget that men ever lived. Nor would you suspect what is the real interest, the historically continuous interest of this post—by day. It is the home of ten thousand Horn-billed Puffins (*Cerorhinca monocerata*). They are the cave-dwellers of Destruction.

Late in April the Puffins, stirred by a common impulse, muster from the wide seas and move upon Destruction by night. If there has been any scouting or premature development work, it has been carried on by night only and has escaped observation. In fact, it is a point of honor among the Rhinos never to appear in the vicinity of the great rookery—or puffinery—by day.

At the tribal home-coming, the keepers tell us, there is a great hubbub. If the location be a brushy hillside, the birds upon arrival crash into the bushes like meteors and take chances of a braining. Upon the ground, they first argue with old neighbors about boundaries. If growls and barks and parrot-like shrieks mean anything, there are some differences of opinion discovered. Perhaps also the details of matrimony have not all been arranged, and there is much screaming avowal.

Gradually, however, order emerges from chaos, and the birds set to work with a will renovating the old home, or driving new tunnels in the loam, sand, clay, or even hardpan. The burrows are usually five to eight feet in length and about five inches in diameter, terminating in a dome-shaped chamber a foot or more across and seven or eight inches high.

Each tunnel has a spur or blind alley which, presumably, is occupied by the male during the honeymoon. For lining, the nuptial chamber boasts nothing more pretentious than a few dead salal leaves and a handful of dried grasses.

When the single egg is laid the male bird leaves his mate and forages at sea, accomplishing to this end almost incredible journeys—sixty miles, say—to get to a favorite feeding ground, and as much to return, after nightfall, laden with sand launces, or their partially digested equivalent. There is a noisy exchange between partners at ten p.m., and another just before daybreak, but whether the female invariably takes the night shift at sea, or whether there is a fairer division, turn and turn about, we do not yet know. A Horn-bill hen, discovered upon her nest, has all the defiant virtue of her sex and calling. The one figured on p. 1521 was sitting on nothing at all, not even a clam-shell; but neither is that original with the Rhino. She is quite ready to peck, too, and a glove is to be recommended for these psychological studies. When given her freedom, the Horn-bill invariably pitches headlong down the declivity, barely clearing the vegetation, until she reaches the level of the water, whereupon she flies away with a swift, even stroke, about a foot above the surface, until lost to sight.

In June the chick hatches, a child of night; and he is appropriately clad in a suit of slaty black down. He has no desire to see the light, least of all as prepared for him by pick and shovel. He feels quite ill at ease when exposed, and spends his entire time shifting about restlessly in the end of a burrow remaining to him, and searching in his soul why he may not find greater privacy.

The children of the night-shift are all alike in this, that they love darkness rather than light. That this was not always true of the Horn-billed Puffin we have curious evidence in the coloring of the egg. Viewed in the large, the purpose of pigmentation is protective. The egg of the gull, exposed to the full glare of day, is dark-colored and so splashed and blotched with brownish blacks that it blends in admirably with its surroundings of dead grasses and dun rocks, and is thus lost to hostile view. But when a species begins to forsake the open and there is no longer need of heavy pigmentation, the egg tends to revert to primitive white; that is, to unpigmented calcium carbonate. Now in the case of the Horn-billed Puffin's egg, as in that of all other Puffins, we find traces of an ancient color-pattern, undoubtedly heavy, still persisting in faint lines of umber and in subdued shell-markings or under-tints of lavender and lilac. These to the oölogist are eloquent of a time ages ago before the race went moon-mad.

No. 301

Little Brown Crane

A. O. U. No. 205. **Grus canadensis canadensis** (Linnæus).

Synonyms.—Northern Brown Crane. Little Sandhill Crane. Canadian Crane.

Description.—*Adult:* General plumage slaty gray (unmixed in the rarely-seen, fully-mature birds, but usually) more or less washed especially on back and scapulars, with ochraceous or rusty,—this rusty sometimes abruptly confined to scattered single feathers; throat and sides of head paling to whitish; alula and wing-quills blackish, the shafts of primaries white; top of head to below eye bare, dull red, the skin minutely warty, and with some short, bristly black hairs. Bill, feet and legs black. *Immature:* Head entirely or decreasingly feathered; plumage heavily washed with brownish and overlaid or invaded by rusty, especially above,—this color clear but evanescent on crown, most persistent on wing-coverts. Length of adult about 889 (35.00); wing 482.6 (19.00); tail 190.5 (7.50); bill 96 (3.78); depth at nostril (rear) 18.8 (.74); tarsus 194 (7.64); middle toe and claw 85.1 (3.35).

Recognition Marks.—Eagle size; slaty gray or brownish color; elongated proportions of bill, neck, and tarsus; smaller than next form.

Nesting.—Does not breed in California. *Nest:* On drier portion of grassy flat, a shallow platform of weed-stems and dried grasses. *Eggs:* 2; light greenish clay-color to light olive-brown or avellaneous, marked rather obscurely with dull reddish brown and brownish drab. Av. size 94 x 61 (3.70 x 2.40). *Season:* c. June 1st.

Range of *Grus canadensis.*—North America, breeding from Alaska and Arctic islands south to Florida and Louisiana; wintering south to Mexico.

Range of *G. c. canadensis.*—Breeds from northern Alaska and the Arctic coast south to the mouth of the Yukon, southern Mackenzie, and central Keewatin (but southern limits imperfectly defined as between *canadensis* and *mexicanus*). Migrates chiefly through the interior, and winters south to California, Texas, and Jalisco.

Occurrence in California.—Imperfectly distinguished from that of following form. Probably much the commoner bird during migrations, practically throughout the State. Winters sparingly in the San Joaquin Valley.

Authorities.—A. K. Fisher (*Grus canadensis*), N. Amer. Fauna, no. 7, 1893, p. 20 (Ash Meadows, Nevada-California boundary line); *Grinnell*, Condor, vol. xi., 1909, p. 128 (occurrence in s. Calif.); *J. Mailliard*, Condor, vol. xiii., 1911, p. 50 (Los Baños; measurements); *Cooke*, U. S. Dept. Agric., Bull. no. 128, 1914, p. 7, map (distr. and migr.); *Grinnell, Bryant and Storer*, Game Birds Calif., 1918, p. 273 (desc. occur. habits).

SPRINGTIME in California is like the gradual unfolding of a flower, a little more perfect each day. In the East it is either a gift or a conquest, a tropical favor or a disheveled bouquet, a something to be striven for, now flung in lush promise at the feet of expectant humanity, or suddenly snatched away again, according as Boreas or Flora wins each swiftly succeeding bout. In the West it is not so; and there be those of us who

sigh at times amid the fragrant and inevitable orange-blossoms for the *Sturm und Drang* of a grosser passion. To such comes the multitudinous croak of the passing cranes as a blessed relief. "*Krr—kr—r, kr—r, kr—oo, Kr—r, kr—r, kr—r, kr—oo,*" shout these winged barbarians as their cohorts press northward. "Come with us," they challenge, "flee these soft enticements of the Southland. We will show you how to mock the gnashing teeth of retreating winter. Come where bitter winds provoke hot blood. Come where the owl and the lemming hold sway over vast tundras. Come where Aurora paints the sky with unimaginable splendors. Come—O ye gods!—where man or bird may breathe without the rebuke of jostling elbows." *Kr—r, kr—r, kr—r, kr—r—oo.* Oo aye! It is harsh, discordant, and all that. But it comes with the authority of bagpipes, or bugles. Our herts are wi' ye, birdies!

It is only within comparatively recent years that the Little Brown Crane has emerged to consciousness as the breeding species of Alaska and the British possessions, as contrasted with the less abundant and more widely scattered Sandhill Crane of the northern states and a little beyond. In the West, during migrations and in winter, *canadensis* probably outnumbers the larger species three to one, and in California ten to one. Early references to two species are hopelessly involved, and even to this day there are few, however expert, who will claim to be able to distinguish *canadensis* from *mexicanus* afield. As to the past, we can only surmise that any unseasonable slaughter has been at the expense of resident *mexicanus*, while market-hunting in season has been chiefly concerned with *canadensis*.

The Little Brown Crane still passes in considerable numbers en route to the unsettled country adjacent to the head of the Gulf of California, or it deploys over the cattle ranges of western Kern, Kings, and Fresno counties. Comparatively little is known of their behavior, even in winter, for the birds are precisely where men are not—if there are any such places left—and the lines of demarcation between cranes and men are no longer measured by the range of shot gun but by the range of high power rifles. Thus does man's advancement in the mechanical arts make for brotherhood and contentment among the children of nature. *Aber nit.*

No. 301a Sandhill Crane

A. O. U. No. 206. **Grus canadensis mexicanus** (Müller).

Synonyms.—Southern Sandhill Crane. Brown Crane. Mexican Brown Crane.

Description.—Exactly like preceding species but larger. Length up to 1143 (45.00); wing 558.8 (22.00); tail 203.2 (8.00); bill 139.7 (5.50); depth at base 26.7 (1.05); tarsus 260.6 (10.25); middle toe and claw 101.6 (4.00).

Recognition Marks.—Eagle size; slaty gray or brownish color; crane proportions, distinctive from all except the Great Blue Heron, from which it is further distinguished by more uniform coloration and absence of specially developed feathers, and by its much smaller *black* beak. The tertials of this bird, moreover, are lengthened and luxuriant, making a conspicuous quasi-train.

Nesting.— *Nest:* Of sticks, roots, grass, and trash, built up in shallow water or in open situation. *Eggs:* 2; light olive-brown, or deep reddish olive-buff, marked more or less obscurely with dull reddish brown (army brown to warm sepia) and brownish drab. Av. size 99.1 x 63.5 (3.90 x 2.50). *Season:* February–May, according to latitude; one brood.

Range of *G. c. mexicanus.*—Breeds from south-central British Columbia, Saskatchewan, Manitoba and (formerly at least) Ontario, south to California, Arizona, Colorado, Nebraska, and Ohio; also in Louisiana and Florida, where resident. Winters from California, Arizona, Texas, and Louisiana south over Mexico.

Occurrence in California.—Of limited occurrence in summer, and probably breeding in northern, especially northeastern portion of State. Is seen also about certain Sierran meadows at high levels. Has been seen in summer near Tulare Lake (Goldman), but there is no recent account of nesting within the limits of the State. Sparingly resident in winter at least in the San Joaquin Valley.

Authorities.—Gambel (*Grus mexicana*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 221 (California); *Coues*, Birds of the Northwest, 1874, p. 534 (eggs from Ft. Crook, Calif.); *Cooke*, U. S. Dept. Agric., Bull no. 128, 1914, p. 10, map (distr. and migr.); *Shufeldt*, Anatomical Record, vol. ix., 1915, p. 740, figs. (osteology; relationships); *Swarth*, Condor, vol. xxi., 1919, p. 212 (meas., color of "soft parts," etc.).

IF THE PIONEER West were to choose a bird symbol, none could be more fitting than the Sandhill Crane. Like the buffalo, and the Indian (at his savage best), the crane stands for that type of the wilderness which the white man may obliterate, indeed, but cannot subdue. He is the typical child of the desert, and between him and civilization there is a gulf fixed, a gulf which shot-guns and reclamation projects have done much to widen.

The trouble began, of course, away back, when it was decreed that his flesh was "kosher"—and not only clean but sapid withal, "much resembling that of the Swan in flavor," as Nuttall observes. [Fancy using Swan's flesh as a basis of comparison! Truly we have made *some* progress in the past century.] "In the autumn and winter," Dr. Newberry said, "it [the Brown Crane, i. e. *canadensis* plus *mexicanus*, undistinguished] is abundant on the prairies of California and is always for sale in the markets of San Francisco, where it is highly esteemed as an article of food." Well, it may be true, but that is why the Sandhill Crane has become a tradition in states where it formerly abounded, and a bundle of nerves in most places where it still maintains a foothold.

Alert, wary, and sagacious the Sandhill Crane has always been, for even the hand of the redman was against him. But these qualities have

attained their highest development since the advent of the hungry whites: so that a study of these birds is no longer to be classed as natural history, but only as morbid psychology. Dr. Newberry's testimony,[1] unfortunately brief, deserves exact quotation:

"In August we frequently saw them about the Klamath Lakes, and early in September, while in the Cascade Mountains, in Oregon, the cranes were a constant feature of the scenery of the beautiful but lonely mountain meadows in which we camped. We found them always exceedingly shy and difficult of approach, but not infrequently the files of their tall forms stretching above the tall grass, or their discordant and far-sounding screams, suggested the presence of the human inhabitants of the region, whose territory was now, for the first time, invaded by the white man. The cranes nest on these alpine meadows, and retreat to the milder climate of the valleys of California in winter."

In watching against enemies the crane makes the most of his commanding height; but since he must stoop occasionally to the ground to feed, he requires to be further protected by a surrounding of level stretches in which no possible foe might lurk. In winter the cranes show a marked predilection for islands or river bars. Here, although vigilance may be safely relaxed by the majority, there are always sentinels kept at lookout.

The approach of an enemy is marked by a sonorous challenge,—a mellow, penetrating, powerful note, which seems to hark from the elder Eocene. If this warning is not respected, the bird makes a quick run and springs into the air with a prodigious flapping, which presently smooths out into rhythmical flight, with neck and legs outstretched to the utmost. Meanwhile the bird is blowing his bugle frantically, and if many birds are at it, the syncopated chorus which ensues is one of the most impressive in Nature's oratorio.

In the spring these gracefully ungainly birds indulge in curious antics of courtship. The male bows with outstretched wings and nearly touches the ground with his beak in the extremity of his devotion. The female returns the bow with respect quite as profound, and then they indulge an absurd minuet, swaying, dancing, leaping, and executing high kicks with an entrancing degree of awkwardness. There is no privacy about this phase of courtship, and twenty birds at once may join the giddy whirl which seals the fate of so many young hearts.

A crane's nest is little more than a shakedown, a depression in the soil, or herbage, lined carelessly, or not, with grasses. In placing it the crane takes advantage of some slight eminence, so that she may sweep the landscape with a restless eye, and sneak off laboriously at the slightest

[1] Rep. Pac. R. R. Survey (1857).

suspicion of approach. The two eggs, reckoned among the handsomest by amateurs, are protectively colored to the point of practical invisibility. They are of a warm brownish buff, tilleul buff, as to ground-color, spotted and blotched with verona brown. This is the authentic crane type—faithfully reproduced, for example, in the very different-appearing but structurally related Limpkin, or Crying-bird (*Aramus giganteus*).

The intimate history of the young of this splendid species will probably go unwritten, for we have chosen to make enemies of the Sandhill Cranes. If, indeed, there are any breeding birds of this species left in California, there are probably not above half a dozen pairs all told. The authors of "The Game Birds of California" knew of no positive record since that of Dr. Henshaw, who, on July 29, 1878, took a pair of partly grown young at Fort Bidwell, in Modoc County, although they record, on the authority of Mr. L. Tevis, the occurrence on April 30, 1912, of a pair at Buttonwillow, which seemed to be nesting. I saw a pair of adult Sandhills on the shores of Goose Lake, June 20, 1912; and another pair unquestionably breeding at Eagleville, in the Surprise Valley, on the 30th of June; and again on the 12th of July of that same year.

Taken in Oregon *Photo by William L. Finley*

SANDY, JR., SHAKES A LEG

Sandhill Cranes are omnivorous feeders, their long stiletto-like beaks being equally suited to spearing grasshoppers, frogs, lizards, crickets and other insects, and to probing the earth in search of sprouting grain or succulent bulbs, such as they love. The birds are capable, on occasion, of rising to such sportive fare as mice and young gophers. Indeed, Nelson tells us that the natives at the mouth of the Yukon raise the young of the related form, *G. c. canadensis*, and keep them about camp because of their usefulness in keeping down vermin. I should be rather chary of keeping such a pet myself, because a crane, like a bittern, if angered or brought to bay, will strike for the eye, and he does not need to strike twice.

No. 302

California Clapper Rail

A. O. U. No. 210. **Rallus obsoletus** Ridgway.

Synonyms.—Salt-water Marsh-hen. Mud-hen.

Description.—*Adult:* Above olive-gray or grayish olive, feathers of back, scapulars, etc., varied by exposed blackish centers of feathers; forehead and fore-crown interspersed with numerous black denuded shafts; a pale tawny or whitish supraloral stripe; chin and throat whitish or palest tawny; fore-neck and breast, broadly, uniform deep cinnamon; lining of wings, axillars, sides and flanks (broadly, sometimes meeting across the middle of belly), and crissum, brownish dusky, coarsely and narrowly barred with white; middle of belly pale tawny; lateral under tail-coverts pure white. Bill and feet (drying) horn-color. *Downy young:* Uniform glossy black. Length (av. of 10 San Francisco Bay bird-skins): 368.5 (14.49); wing 163.1 (6.42); bill 60.3 (2.37); tarsus 54.7 (2.15).

Recognition Marks.—Small crow size; olive-gray above, reddish below; marsh skulking habits.

Nesting.—*Nest:* In salt marsh near tide-gut; a more or less bulky crater of broken grass-stems or dead stalks of salicornia; usually concealed by overshadowing vegetation. *Eggs:* 7 to 11 (12 of record); creamy white to pale buffy (ivory-yellow and cartridge-buff), spotted, boldly and sparingly, with chocolate and dark vinaceous gray. Av. of 25 eggs in the M. C. O. Coll.: 42.2 x 30.8 (1.66 x 1.21); index 71.7. *Season:* c. April 10th (March–June); one brood.

General Range.—Resident on salt marshes tributary to Monterey and San Francisco bays. Casually observed north to Humboldt Bay and possibly Gray's Harbor, Washington.

Distribution in California.—Resident in the salt marshes of the southern arm of San Francisco Bay and in the vicinity of Elkhorn, Monterey County. Formerly occurred on the north side of San Francisco Bay, and has been recorded from Tomales Bay and Humboldt Bay. Accidental on the Farallons.

Authorities.—**Newberry** (*Rallus elegans*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 96 (San Francisco and Petaluma); *Ridgway*, Am. Nat., vol. viii., 1871, p. 111 (orig. desc. of *Rallus elegans*, var. *obsoletus;* type locality, San Francisco); *W. E. Bryant*, Bull. Nutt. Orn. Club, vol. v., 1880, p. 124 (habits, desc. eggs, etc.); *Cooke*, U. S. Dept. Agric., Bull. no. 128, 1914, p. 18, map (distribution); *Grinnell, Bryant and Storer*, Game Birds Calif., 1918, p. 283 (desc., occurrence, habits, etc.).

SAN FRANCISCO is a comparatively clean city, as cities go; but San Francisco Bay mud is the deepest and the blackest and the stickiest—in short, the muddiest that ever vexed a poor birdman wanting to get from here to yonder across a half-filled tide-gut. The distance across may not be over a dozen feet—just a little long for jumping, with an uncertain foothold on either bank. What's to do? It is miles around this absurd little artery of the salt marshes. Shall we try wading? Only once! And never again! The mud is unfathomable; and the scuttling crabs, who say it is

easy—well, they lie. What would tempt an honest birdman to tramp these interminable acres of "pickle weed," and to flounder across these interminable mud sloughs, anyway? Obviously, only the presiding genius of San Francisco Bay, the California Clapper Rail. Here comes one of these dandies of the mud, now, a symphony in browns with insertions of white. Stepping forth from the curtain of salicornia, which leans over the sloping sides of the slough, Sir Clapper plants a careful foot, and eyes you quizzically. If passably reassured, he moves over the mud in a gingerly manner, hitching his head and jetting his apology for a tail. He is like a horse with a tight crupper, and his under tail-coverts flash a white distress signal each time he hitches forward. But he is only putting on airs. Let a worm appear on the mud and the Rail seizes it by a nimble dash, in which dignity is utterly forgotten. The worm he bolts on the spot, or else retires to shelter if the victim requires disciplinary measures. If the bird, also, has business on the other side of the slough, he will swim the salty stream, also with a hitching motion; or else he will rise heavily, dragging his reluctant feet ostentatiously through the air, and drop to cover as soon as may be.

For all that we can see, the life of the Clapper Rail is passed in these humble surroundings, amidst endless acres of salicornia (*Salicornia ambigua*), broken only by occasional patches of "greenbush" (*Grindelia cuneifolia*). Nothing more exciting offers in the round year than a drenching storm, or a high tide which floods his meadows, and leaves the birds to swim about disconsolate until the waters are abated. If these portentous occasions occur in November, other Rails, chiefly migrants, are disclosed: namely, the Sora, the Yellow, and the California Black Rails. At such times the gunners used to reap shameful harvests. A rail on the wing is easier to hit than a tin can, anyway, but a rail on the waters is yours for the asking. Being so near to San Francisco, and yielding as they do their decent pound of flesh, the Clapper Rails were unmercifully harried, until the race was well nigh on the verge of extinction. But now that Federal protection has been established, the race bids fair to recover, at least in those limited sections which industry has not claimed, or agriculture "reclaimed."

Our chief interest in the California Clapper Rail attaches to the nesting time. According to Chase Littlejohn, the veteran ornithologist of Redwood City, these rails nest twice in a season, once in April along the banks of the tide channels, and again in June, when they resort to the deeper cover which borders the bay shore. My own information was gathered in two privileged days (April 14, 15, 1911) spent near Redwood City, where I found ten occupied nests. In placing their domiciles, the birds chose only the densest cover, usually that afforded by the little patches of *Grindelia*, which at this season of the year is about two feet high.

Where this shelter is denied them, a heavy stand of salicornia will do, but especially one where drift material is upborne as a sort of canopy by the tops of the growing plants. A heavy platform of similar drift material,

Taken in San Mateo County *Photo by the Author*

NEST AND EGGS OF CALIFORNIA CLAPPER RAIL

dead grasses and dried tule-stems, is built up on the sodden ground to a height of four or five inches. Here in a hollow seven inches across and from one to three inches in depth, a complement of eight or nine eggs is placed. The eggs are of a "lovely" ivory-yellow color, sparingly dotted and spotted with liver-brown or chocolate.

The nest in most cases is approached by a runway, a sort of tunnel driven through the matted vegetation, and this sometimes reaches quite to the bank of the nearest tide-gut. Sometimes the sitting bird will flush only under the tap of a beating-stick—the collector's divining rod—but oftener it manages to anticipate the collector's approach by a run of four or five feet previous to rising. One bird which I put up was so flustered that she fell souse into the water and swam off looking over her shoulder.

Not only have these poor birds suffered terribly at the hands of gunners, but their numbers have been still further reduced by the depredations

of Norway rats, which infest these marshes and which do not scruple to plunder the nests, whatever the stage of incubation reached.

According to Mr. Chase Littlejohn, still another enemy has arisen to make the life of this bird miserable—a certain mussel once imported from the East. This thrifty bivalve flourishes and increases enormously in just that range which has been from time immemorial the peculiar province of the rail; viz., the mud strip just below the line of vegetation on the banks of the tide channels. Now the bird must seek its living here or change its habits entirely. But the mussel is a sensitive, not to mention a supercilious creature, and when our native son steps carelessly, it closes its doors with a bang—and often seizes the hapless rail by the toe.

So common is this that many specimens with maimed feet or missing toes have been taken, and a few have been captured right where they were being held captive by the mussels. Others, more fortunate in escaping, are nevertheless condemned to drag about a ball on the foot, a mass of dried mud and trash of which the mussel is the unyielding nucleus. The bivalve apparently never releases its hold, and even in death, which must soon occur, does not relax its deathly grasp upon its victim.

In one instance at least, a bird was seized by the bill, and although it was able to wrest the bivalve free from its anchorage, the creature had closed upon its beak with such a grip that the bird was unable to get food, and was found in a famished and attenuated condition. This specimen Mr. Littlejohn has in his collection, a mute reminder of one knows not how many scores of similar tragedies.

No. 303

Light-footed Rail

A. O. U. No. 210.1. **Rallus levipes** Bangs.

Description.—*Adult:* Similar to *R. obsoletus*, but slightly smaller and coloration warmer and darker; breast, etc., cinnamon-rufous instead of cinnamon-brown. Bill averaging shorter; feet and legs less robust. Av. of 5 skins: wing 151.1 (5.95); bill 56.3 (2.22); tarsus 52.7 (2.07).

Recognition Marks.—As in preceding species; smaller and darker.

Nesting.— *Nest* and *eggs* indistinguishable from those of preceding species.

Range (chiefly within California).—Resident in coastal marshes from San Quentin, Lower California, north at least to Santa Barbara.

Authorities.—**Henshaw** (*Rallus obsoletus*), Rep. Orn. Wheeler Surv., 1876, p. 273 (Santa Barbara); *Bangs*, Proc. New England Zool. Club, vol. i., 1899, p. 45 (orig. desc. of *Rallus levipes;* type locality, Newport Landing, Los Angeles Co.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 32 (s. Calif., nesting dates, etc.).

The Light-footed Rail

THERE IS no such conspicuous difference between this species and the northern bird as is indicated by the name *levipes*, although the feet of the females do average *slightly* smaller than those of *obsoletus*. *Levipes* is just as surely a "Clapper" Rail, and this fact should be recognized in nomenclature. Inasmuch as this species was described from a beach near Los Angeles, and inasmuch as Los Angeles is entitled by divine edict (which no one hitherto has presumed to question) to everything in sight, I respectfully propose for this nimble-footed creature the name Los Angeles Clapper Rail. The San Francisco Clapper Rail is manifestly *obsoletus*, but the Los Angeles Clapper Rail, if not strictly *levipes*, is at least *levicor*, as becomes a true-hearted son of the South.

Whatever might be the size, or weight, of our Clapper Rail's feet after a bath, they sustain an emphatic increase whenever the bird essays to wade in the muck. Mucking is the serious business of life, but the Rails react to it as variously as people might. The first bird I ever saw, at Sandyland, was a sorry-looking slattern at best. She had been dabbling as well as wading, and while her feet were several sizes too large for her, as might be expected, her *face* was completely masked in muck, a veritable Dolores of the Swamps.

Taken in San Diego

NEST AND EGGS OF LIGHT-FOOTED RAIL

Photo by D. R. Dickey

1534

Taken in San Diego *Photo by Dickey*

GETTING SETTLED
NEST OF LIGHT-FOOTED RAIL IN SALICORNIA

On another occasion, in late autumn, I saw several of these birds feeding over the shallows of a tidal pool at noonday. Although the place was full of Shore-birds, the Rails were self-conscious and furtive, like overgrown boys. One lonesome hobbledehoy I caught consorting with "peeps." He moved off with violent gesticulations, alternately bowing his head to the water and craning it upward to the utmost. And all the time he jetted the tail, flashing its under white as a sort of staccato punctuation of effort. Upon retiring across the mud, however, my bird acted a little prudish, pausing now and again with uplifted foot, as though looking for the least muddy spot, and withdrawing it again quickly as though its worst fears had been realized.

It is only toward evening that the Los Angeles Clapper Rails become most active. As the sun sets, if the season is right, one may see an anxious mother stealing forth from the edge of the protecting salicornia and leading a little company, six or eight, of tottering youngsters all tricked out in costumes of shining black. Baby rails are ineffably cute. Whether it be the mother instinct or the bear instinct in us, we cannot tell, but I never

meet one of these engaging waifs of the swamp without wanting to squeeze it, real hard.

Eventide, also, is the time for that discursive song which won for our hero the name "Clapper." In a populous marsh one may hear six or seven birds at once uttering these peculiar, strident, iterative calls. The notes are very hard to characterize. Some one, I suppose, must have likened them to the sound of a fence-board struck by a stick. To me they sound more like the cheep of a baby Blackbird greatly exaggerated. With head and neck stretched vertically, the bird delights to roll out ten or a dozen of these notes in a series, *rallentando sostentuto* or *rallentando et diminuendo*, as the case may be.

There is, I suppose, no bird more surely doomed to disappear before the inroads of civilization than this humble resident of our coastal marshes. A mere stretch of level land, *unoccupied*, is an abomination to a Los Angeles real estate agent. He will have it diked and drained and he will cover it with summer hotels, or billboards at the very least. And now that the coastal highway system has been completed, there is not a two by four patch of marsh land which is not ransacked by guns and dogs or small boys a dozen times a year. *C'est le guerre. Que voulez vous?*

No. 304

Yuma Clapper Rail

Rallus yumanensis Dickey.

Description.—Similar to *Rallus levipes*, but outer superior wing-coverts and alula duller and more olivaceous; the coloration of underparts paler; tarsus and bill more slender.

Range.—"So far as known, the fresh water riparian strip along the Colorado River above Yuma, and adjacent irrigation canals in the vicinity of Laguna Dam. The dates of capture, together with a field notation by the collector (May 27, 'laying') definitely indicate summer residence in this region and association. The winter range is at present unknown" (Dickey).

Authority.—Dickey (*Rallus yumanensis*), Auk, vol. xl., 1923, p. 90 (orig. desc.; type locality, Bard, Imperial Co.).

TO MR. DONALD R. DICKEY, of Pasadena, seconded by his able field lieutenants, Messrs. A. van Rossem and Laurence Huey and Mrs. May Canfield (an aunt of the last-named), has fallen the good fortune of writing a considerable amount of ornithological history in California. It was Mrs. Canfield's gun which brought down this *rara avis*, which Mr. Dickey's enthusiasm has elaborated as a new species; and surely great

credit is due both to the lady and her historian, for a fish perambulating on dry land would not be more remarkable than one of these salt-marsh rails in such a distinctly fresh-water association as the banks of the "Rio Colorado." Yet this irruption of a form previously unknown reminds us how little we do know yet of the lagoons and marshy wastes of Lower California and Mexico. Presumably this form, *yumanensis*, is a resident of the extreme delta country which marks the outlet of the Colorado, unexplored, primarily because it is on Mexican territory.

Whether the new Clapper Rail deserves full specific rank may be doubted. Coastal tidewater marshes are necessarily interrupted; and whereas we now insist upon discovering a new "species" in every isolated marsh group, fuller knowledge may reveal the wisdom of recognizing one wide-spread species, viz., *Rallus longirostris* Boddaert, with an orderly sequence of local races up and down both coasts of both Americas. Or at least we have here in the *longirostrimorphs* "a species with the value of a genus."

No. 305

Virginia Rail

A. O. U. No. 212. **Rallus virginianus** Linnæus.

Description.—*Adult:* Above brownish black, the feathers broadly striped laterally with lighter browns (wood-brown, bister, and olive-brown), and shading into burnt umber on wing-coverts and edges of quills; forehead with numerous, enlarged, glossy, black shafts without attendant vanes; a light line over eye in front, and a dusky line through eye; lower eyelid white; sides of head ashy gray; chin and upper throat white; lower throat and breast cinnamon-rufous (Mars brown), growing paler medially and posteriorly; belly, flanks, and lining of wings brownish dusky or blackish, crossed by narrow white bars, lighter, or sometimes almost unmarked fulvous, centrally and on thighs. Bill red, darker above. *Immature* birds show blackish more extensively on underparts. *Downy young:* Uniform glossy black. Length 203.2-266.7 (8.00-10.50); wing 105.4 (4.15); tail 50.8 (2.00); bill 38.1 (1.50); tarsus 33.8 (1.33); middle toe and claw 45.2 (1.78).

Recognition Marks.—Robin size (to appearance); marsh-prowling habits. The long reddish bill and rufous coloration serve to distinguish this bird from the following species.

Nesting.—*Nest:* Of sedge and grasses in tussock of swamp. *Eggs:* 6 to 12; creamy white or pale buffy (ivory-yellow to pale vinaceous buff) of noticeably lighter coloration than those of succeeding species); spotted and dotted with reddish brown and vinaceous gray. Av. size 31.8 x 24.1 (1.25 x .95). *Season:* April–June; one brood.

General Range.—North America. Breeds from the southern Canadian Provinces south to the Central States, and coastwise to North Carolina and southern Cali-

fornia; also "in Toluca Valley, Mexico" (A. O. U.). Winters from Oregon, Utah, and Colorado, south to Lower California and Guatemala; in the lower Mississippi states and from North Carolina to Florida.

Distribution in California.—Common summer resident in fresh water marshes throughout the State, breeding south to Escondido, San Diego County. Fairly common winter resident west of the Sierras both in fresh and salt marshes, north at least to Suisun (M. V. Z.) and Tomales Bay (Mailliard).

Authorities.—**Newberry** (*Rallus virginianus*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 96 (Vacaville, etc.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 32 (s. Calif., nesting dates, etc.); *McLean*, Condor, vol. xviii., 1916, p. 229 (Mariposa Co., nesting habits).

GIVEN an oasis of water of, say, two acres extent, in a pasture desert of barren green; crowd a company of willows into one end; add a half acre of bogs crowned with rose bushes; then a little space of clear water; then a jungle of cat-tails at the other end; surround the whole with a thirty-foot border of sedges and coarse grasses cropped close on the desert side, and you have an ideal home for the Virginial Rail and his kind. Poke about carefully in the edge of the rose-bog and you will soon start him, a sly reddish bird with a red eye and a longish beak. See him some ten feet away standing at the edge of cover, all alert, one foot uplifted and with claws curled down; or when he plants it gingerly, he alternately perks and lowers his head, as though divided in his mind between darting away and facing it out with you. Simultaneously he cocks his tail forward and relaxes it nervously. If you succeed in looking sufficiently disinterested, he will snatch a slug hastily and watch you furtively with a blood-red eye, to note whether you approve of such actions. If you pass all the tests of good behavior during the first five minutes, the gentle bird will relax his vigilance and show you how he can walk over half-submerged vegetation without sinking very deep himself, or if in the passage from bog to bog he comes to a space of clear brown water, he will swim as lightly as a duck, but with that odd bobbing motion peculiar to his race. A single false motion, however, will send him scuttling off through the plant-stems and out of sight in a twinkling, cackling in alarm and dudgeon.

But splash you around never so bravely in hip-boots, or wait you never so patiently, the feeling grows upon you that you are an outsider, so far as the more intimate interests of the swamp are concerned. There is much trafficking in the sedges, which is not meant for human eyes, and the revealing of the life of any rail is much like the natural history of a shooting-star,—one flash, one history. But the shy birds are brave in voice. As the male rail wanders about uneasily in early April searching for a mate he cries, "*Keg, keggy, keggy, keggy,*" in tones which convey an impression of a much larger and fiercer bird. The anxiety of a female for her

young is betrayed by a mournful *ki-i* or by short phrases of creaking notes. If the young are in hiding, a low cluck of reassurance will bring them scurrying to find their mother.

A hummock of grass or a patch of thickset cat-tails, whether in a fresh-

Taken in Washington *Photo by the Author*

NEST AND EGGS OF VIRGINIA RAIL

water or a brackish marsh, is usually selected as a nesting place. The water of the swamp may be only an inch or so in depth or it may be a foot, but the bird breaks down the grasses until she has a reliable foundation a few inches above the water. On this she piles dead grasses or broken cat-tail leaves and hollows them out to some semblance of comfort. The bird is a close sitter and usually flies when first flushed. She is rather careful not to be caught a second time, however, and will glide off quietly and invisibly if the visitor insists upon recurrent visits. If the eggs are handled in her absence, the owner is likely to destroy them upon her return; and Mr. J. H. Bowles has a set which he rescued nearly in time, with only one of its eggs pierced clear through by a thrust of the bird's long beak.

The eggs, averaging fewer in number than the Sora's, may be cer-

tainly distinguished from them by their lighter creamy or grayish white tone, as well as by the clearer red of their markings.

Mr. Donald W. McLean, of Coulterville, has given us an interesting account[1] of a pair observed near his home. There were ten eggs in a "tower-like structure of flat marsh grasses," on the 5th of June, 1916, and incubation had apparently begun. "On June 19th, there were six coal-black young in the nest. They had black-ringed pink bills, and their feet were very large in proportion to their bodies. Now the demeanor of the female changed. She forgot her shyness and walked about in the open within three feet of where we stood. She fluffed up her feathers after the manner of a sitting hen, and uttered many clucks and whistles which were answered by the shrill whistle of the male. He was not so brave as she and did not show himself except at intervals. On this same day several of the young clambered out of the nest into the water. We replaced them and quitted the vicinity so as not to disturb the family."

No. 306

Sora Rail

A. O. U. No. 214. **Porzana carolina** (Linnæus).

Synonyms.—Carolina Rail. Sora. Soree.

Description.—*Adult:* Above olive-brown varied by black and white in spots and stripes on back and scapulars,—the black broad and central, the white narrow and marginal; region about base of bill, chin, throat, and median crown-stripe black; cheeks behind, sides of throat, and breast bluish ash; below olive-brown to dusky, sharply barred with white, whitening on middle of belly; under tail-coverts tawny or tawny-washed; wing-quills fuscous; edge of wing and of first primary white. Bill yellow, darkening on tip of upper mandible. *Immature:* Without black on head and neck; chin whitish; throat and breast washed with light brown. *Downy young:* Sooty black, the down interspersed sparingly with longer glossy black hairs; a tuft of bright orange bristles on throat,—stiff and inclined forward and a bright red excrescence at base of upper mandible. Length 203.2-241.3 (8.00-9.50); wing 106.7 (4.20); tail 50.8 (2.00); bill 21.1 (.83); tarsus 34.5 (1.36); middle toe and claw 47 (1.85).

Recognition Marks.—Towhee size, but stouter in appearance; marsh-skulking habits; *short* yellowish bill.

Nesting.—*Nest:* A raised platform of grasses and sedge, usually placed centrally in grass tussock of swamp. *Eggs:* 6 to 15; dull buffy or ochraceous buff (and so darker than eggs of *Rallus virginianus*), spotted and dotted with dull chocolate and vinaceous gray. Av. size 31.5 x 22.9 (1.24 x .90). *Season:* c. May 20; one brood.

General Range.—Breeds in temperate North America from southern California, Utah, Kansas, Illinois, and New Jersey, north to central British Columbia, southern

[1] The Condor, Nov., 1916, p. 229.

Mackenzie, and the Gulf of St. Lawrence. Winters south from northern California, Illinois, and South Carolina through middle America to Venezuela, Colombia, and Ecuador. Of the widest occurrence during migrations.

Distribution in California.—Common summer resident, chiefly in fresh water marshes throughout the State. Also common in winter in fresh or brackish marshes west of the Sierras, north (at least) to Butte County. Widely dispersed during migrations.

Authorities.—Cassin (*Porzana carolina*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 749 (Colorado River; San Diego); *Shufeldt*, Jour. Comp. Medicine and Surgery, July, 1888 (16 pp.), 7 figs. (osteology); *Ray*, Condor, vol. xv., 1913, p. 111 (Lake Tahoe; desc. and photos of nest and eggs).

"AS THIN as a rail" does not refer to the Lincoln variety of split trees, but to this bird and its congeners. The birds are bilaterally compressed in order to enable them to slip readily between the close-set stalks of vegetation. And this they do with almost incredible rapidity, and without leaving a wake of motion by which they may be traced.

Like the California Clapper Rail, the Sora rises to a dog; or if caught feeding inshore some little way from his watery fastnesses, he flits over the tops of the reeds, drops down suddenly, and loses himself immediately in the maze. It is idle to follow him when alarmed, for he will not rise again save under exceptional circumstances. Immense numbers of these birds used to be slaughtered yearly, especially along the Atlantic Coast. They have this at least to recommend them,—that they are easy practice for juvenile hunters. They afford less meat, however, than so many English Sparrows, and qualms of conscience make poor sauce.

Though rightly counted shy, the Sora possesses one trait which brings it into frequent notice—curiosity.

Taken near Santa Barbara *Photo by the Author*

STOP! LOOK! LISTEN!

Often when I have been lying in a boat waiting for ducks, among the aquatic plants, some little distance off-shore and removed from the usual haunts of the Sora, I have heard sundry *keks*, half apprehensive, half quizzical, followed by the plashing of light feet as a troop of the little rails worked their way out and surrounded me, under pretense, indeed, of searching for food, but being too plainly prompted by inquisitiveness. Dr. Howard Jones tells of similar experiences: "I have had them come up to me and peck my gum boots, and play with the gun barrel as a bantam rooster does when teased."

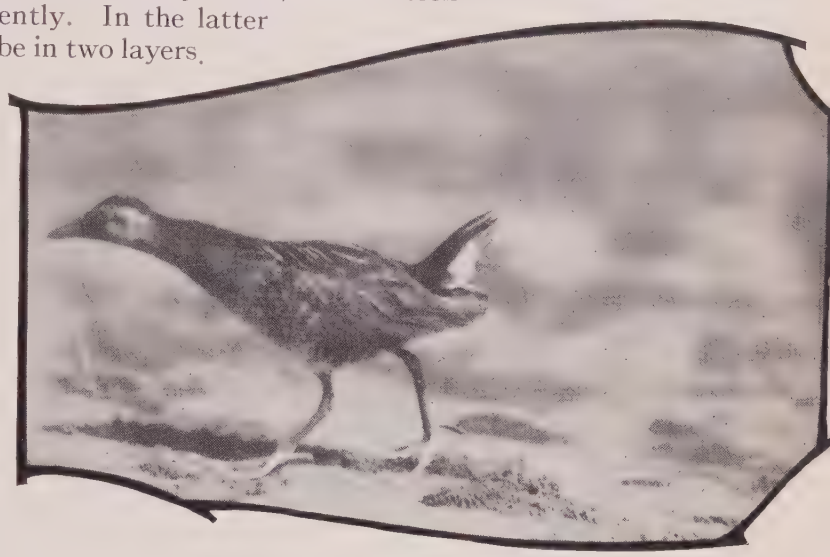
Or if the bird will not show himself, a sudden clapping of the hands will betray him into startled ejaculation. Making the Sora "speak" is no end of fun; and if one is intent upon making a record horizon of birds, it is almost necessary to try one ruse or another. Often and often have I flung a stone or a stick of wood into a wayside clump of tules to be rewarded instantly with a shouted *crick creek croo*, satisfying evidence that the Sora is on the job.

A slight platform of rushes or a shallow basket of woven cat-tail leaves and grasses serves this bird for a nest. A site is chosen anywhere in the

Taken on Big Bear Lake *Photo by W. M. Pierce*

NEST AND EGGS OF SORA RAIL, HATCHING

swamp, but usually in a rather open situation. Sometimes a tussock of grass is used, and the growing blades curl over to conceal this anchored ark of bulrushes. The Sora is a little more prolific than her cousin, the Virginia, a dozen eggs being commonly found, and fourteen and fifteen not infrequently. In the latter case the eggs are apt to be in two layers. The ochraceous cast of the ground-color is unmistakable, and the spots are both more numerous and of a duller brown than those of *R. virginianus*.



Taken in San Diego *Photo by L. Huey and D. R. Dickey*

SORA RAIL: A "HAND-PICKED" SPECIMEN

Nothing could be at once more interesting and more comical than the appearance of a young Sora just out of the shell. He is, to begin with, a ball of down as black as jet, and he has a most ridiculous tuft of orange chin whiskers. Add to this a bright red protuberance at the base of the upper mandible and an air of defiance, and you have a very clown. And such precocity! Once, in a secluded spot, I came upon a nestful at the critical time. Hearing my distant footsteps most of the brood had taken to their new-found heels, leaving two luckless wights *in ova*. At my approach one more prison door flew open. The absurd fluff-ball rolled out, shook itself, grasped the situation, promptly tumbled over the side of the nest, and started to swim across a six-foot pool to safety.

A lifetime of prowling in the swamps will not give a person any adequate conception of the total number of Sora Rails. From the migrations, however, we are able to guess that it must be enormous. During the migrations, which take place at night, the birds straggle over the landscape at low elevation and quite irrespective of the fly-lines observed by many other species. As a consequence, many Soras fall victim to telephone wires or even barb-wire fences; and not a few are picked up in town in the street or in the garden, or wherever dawn has overtaken the weary traveler. Such an occurrence affords the man on the street his only glimpse of this pixy of the marshes, which makes appeal alike for its oddity and for its

philosophical acceptance of strange surroundings. The stranger is plied with unwelcome dainties (he prefers bugs and worms of his own choosing); and the upshot is that the museum man receives by post a few days later an ominous little box, which by reason of its frequency and flatness he knows to contain the sad remains of *Porzana carolina*, "as thin as a rail."

No. 307

Yellow Rail

A. O. U. No. 215. **Coturnicops noveboracensis** (Gmelin).

Description.—*Adult:* Upperparts, sides, and flanks chiefly black, exquisitely marked in large pattern by fine bars of white, and interrupted, especially on back and wings, by parted lateral edgings of ochraceous; middle of belly white; throat and breast rich ochraceous tawny (sayal brown to cinnamon-brown), with obsolete barring of dusky, clearing and paling on chin to buffy, changing on sides of head, neck, and breast through finely clouded mixture of black, white and tawny to pattern of upperparts; bend and edge of wing white, as also much of the wing-lining. Length 152.4 (6.00) or 177.8 (7.00). Av. of five California specimens: wing 85 (3.35); bill 12.7 (.50); tarsus 24.5 (.96).

Recognition Marks.—Actually sparrow size, but appearing larger; marsh-skulking habits; yellowish brown coloration with size distinctive.

Nesting.—*Nest:* A hollowed cushion of coiled grasses raised above shallow water or moist ground, usually well concealed and marked by wisp of dead grass or hay. *Eggs:* 7 to 9; ivory-yellow or cartridge-buff, finely spotted with reddish brown (hazel to chestnut), the spotting usually confined to a cap, more rarely wreathed or scattering. Av. size 26.2-30 x 19.6-22.1 (1.03-1.18 by .77 x .87). *Season:* June; one brood.

General Range.—Temperate North America; breeding from southern Mackenzie, central Keewatin and southern Ungava south to Maine, Minnesota and South Dakota. Winters in North Carolina, the Gulf States, and California.

Occurrence in California.—"Rather rare winter visitant to marshes of west central California" (Grinnell, Bryant and Storer). Sporadically abundant, as revealed by high tides. Also recorded for Humboldt, Riverside, and Orange counties.

Authorities.—**Cooper** (*Porzana noveboracensis*), Proc. Calif. Acad. Sci., vol. iv., 1868, p. 8 (Martinez and San Francisco Bay); *Cooke*, U. S. Dept. Agric., Bull. no. 128, 1914, p. 31, map (distr. and migr.); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 47 (status in Calif.); *Dawson*, Jour. Mus. Comp. Ool., vol. ii., 1922, nos. 3-4, p. 31 (Mono Co., desc. nest, eggs).

IN ORDER that my readers may see how ornithological history is sometimes made "while you wait," I give below the account as originally prepared for these pages six years ago. To this I append an exact reproduction of the account appearing in "The Journal of the Museum of Comparative Oology" (Vol. II., Nos. 3-4, Oct. 26, 1922, pp. 31, 32) under the

caption, "A New Breeding Record for California," by William Leon Dawson. In the same issue of the Journal appears a comprehensive article by the Rev. P. B. Peabody, who has followed the fortunes of this rare species for twenty years past, in North Dakota, and who probably knows more of its habits and nesting than all other observers combined.

Perhaps there is not another bird in America of fairly general distribution of whose habits and life history so little is known as of the Yellow Rail. Of its notes, indeed, much has been written, but little has been agreed upon. The voices of the marsh are often emphatic enough and sometimes thrilling, but they remain voices of mystery. Nests have been found, but the nests of the Yellow Rail are rarer than those of any of the Little Black Rails. Its comings and goings are only dimly outlined by the revelations of entangling fence-wires or of merciless high tides.

According to Mr. Chase W. Littlejohn, this is one of the species exposed by the November high tides which cover the San Francisco marshes. At such times the birds have been seen by scores swimming restlessly from clump to clump over the inundated flats. At all other times the bird

Photo by Norman A. Wood

YELLOW RAIL IN CAPTIVITY

trusts rather to its amazing ability to thread the maze of salicornia or grass-stems unseen, and is one of the hardest of birds to flush. So great is the bird's reluctance to take wing, that when fairly cornered it will sometimes allow itself to be picked up by hand rather than attempt to fly.

The Yellow Rail

That the Yellow Rail winters with us, at least upon the marshes tributary to San Francisco Bay, there can be no doubt. It is almost equally certain that the bird does not breed in the State, nor indeed anywhere west of the Rocky Mountains. It is rather one of those species which, like the Marbled Godwit, nests in the Dakotas and the northern interior generally and comes west, as well as south to California, to spend a restful winter. There are two records for southern California based on specimens, and one sight record for Santa Barbara[1] in which I do not myself place implicit confidence.

Taken in North Dakota *Photo by Rev. P. B. Peabody*

n/8 YELLOW RAIL, IN SITU
INVESTING GRASSES PARTED

"The heavy snows of the past winter, the deepest in decades, convinced us that there was no need for haste. So as we skirted, on the 6th day of June, the eastern bases of the Sierra Nevada Mountains en route to Mammoth Camp, we accepted the challenge of a Yellow-headed Blackbird sounding from a wayside swamp and deployed for investigation. The place was Long Valley, a well-watered plateau in southern Mono County, and the altitude was something over 7000 feet. I had passed the swamp unheeding a dozen times before, in previous seasons; but one of my assistants, Lawrence Stevens, had never seen a Yellow-head's nest, and was curious. A broad stretch of shallow water, say quarter of a mile wide and a mile long, is here fed by mountain springs, and bears a complete investiture of rank grasses or dwarf sedges, save where, centrally, it supports low beds of tules, or irrupts in pools so charged with mineral content that vegetation will not grow. Cattle tramp the edges in droves, but apparently avoid the central portion of the swamp because of its treacherous nature.

[1] Dec. 26, 1914. Reported in Bird-Lore, Vol. XVII., Jan.–Feb., 1915, p. 47.

"On the way we found a belated nest of Cinnamon Teal, n/9, and in a central tule patch a solitary nest, n/4, of the Yellow-headed Blackbird. Wilson Phalaropes were hooting at us; and a persistent search for eggs of this species yielded such good returns that we decided to return to our abandoned camp for lunch, and to put in the afternoon with a drag rope. Accordingly, we re-entered the swamp at two o'clock. Stevens and our old-time mascot, Robert Canterbury (now 19), manned the rope; while I floundered along behind, marking the rare irruptions of startled nesters. A nest of the Savannah Sparrow, n/5, with fresh eggs, very light in coloration, was the first find; and a Sora Rail's nest with only two eggs, apparently incubated, the second.

"We were dragging a rather thin stretch of marsh grass when a Jack Snipe flushed and I called Stevens to my assistance, leaving Bobby, who was more remote, standingly listlessly by his rope-end. Returning from a fruitless quest, we were about to resume operations when Bobby exclaimed, 'Well, look at this!' He had been standing all the while within

Taken in North Dakota *Photo by Rev. P. B. Peabody*

n/9 YELLOW RAIL, A TYPICALLY MARKED SET

three feet of a low-lying cushion, which held, in a compact and perfect circle, eight fresh eggs. The cover of marsh grass was scanty, not over eighteen inches high, and the water shallow—an inch or so; yet there was no trace of a bird about. The eggs were 'different'—no doubt of that; much smaller than those of a Sora, which we had, fortunately, just examined; of a dark, old-ivory color, heavily sprinkled, almost capped at the larger end, with rich reddish brown spots. The nest itself was noncommittal, a well-rounded and rather deep bowl of coiled grasses, three and a half inches across by two in depth inside, built up to a height of three inches clear of the water. Notably, there was present a leaning and overshadowing wisp of dead grass. I considered the exhibit long and carefully, too sobered, for once, to render snap-judgment. The boys became impatient and pressed for an expression of opinion. Finally, I said, 'Well, boys, to the best of my knowledge and belief, these are eggs of the Yellow Rail (*Coturnicops noveboracensis*), the first breeding record for California, and the first set ever taken west of the Rocky Mountains.'

"We left the eggs undisturbed and tagged the spot with cotton tufts. Returning ten minutes later, I found no bird. Returning again after half an hour and stooping over the nest attentively, I saw that one of the eggs had been moved, pried over on top of the others. Then the bird's nerves gave way, and she flushed from a spot two feet beyond the nest and not over five feet from my face. I watched her keenly, as with feeble, vacillating flight she passed at a height of two or three feet above the sedge-tops, and plumped down some seventy-five feet away. The bird was unmistakably smaller and otherwise different from the Sora, which we had recently observed, also in flight. I got no impression of yellow; but since the flight of the bird was quartering against the sun, that is not surprising.

"Although we spent another day in the swamp, we saw no further trace of Yellow Rails, unless a nest 'ready for eggs,' discovered by the boys but unseen by me, belonged to this species.

"Compared in the cabinet with a set, n/8, of Yellow Rail's eggs, taken last year by Rev. P. B. Peabody, there can be no possible doubt of the correct identification of these Long Valley specimens. I quite agree with Mr. Peabody that they are absolutely unlike the eggs of any other American species. The eggs were slightly incubated, and the albumen so stiff that it was rather difficult of removal. The set, R110—8-22, averages mm 28.8 x 20.4 in dimensions, and the ground-color is a trifle darker than that of the North Dakota specimens."

No. 308

California Black Rail

A. O. U. No. 216.1. **Creciscus jamaicensis coturniculus** Ridgway.

Synonyms.—Pacific Black Rail. Farallon Rail. Farallon Black Rail. Little Black Rail.

Description.—*Adult:* Head, breast, and upper belly blackish slate, changing to purer black on sides of head and on crown; a broad patch of rich chestnut on cervix; remaining plumage brownish black, on belly and flanks indistinctly barred with white, on back and wings sharply spotted with white and faintly washed with chestnut; border of wing white. Bill black; feet brownish. *Immature:* Like adult, but duller; paler below centrally, chin and throat whitish. Length 127-152.4 (5.00-6.00); av. of 10 Berkeley specimens (skins): length 136 (5.36); wing 65.9 (2.59); bill 14 (.55); tarsus 21 (.827).

Recognition Marks.—Warbler size but appearing sparrow size; an incorrigible skulker in marshes; slaty black plumage distinctive.

Nesting.—*Nest:* In salt marsh, a shallow platform of broken salicornia stalks placed on ground and more or less concealed by overarching plants. *Eggs:* 4 to 8; elliptical ovate, white or pinkish white, finely but sparingly sprinkled and spotted with reddish brown (walnut-brown to mikado brown) and vinaceous gray. Av. size of 14 specimens in the M. C. O. coll.: 24.5 x 18.5 (.965 x .73); index 75.8. *Season:* March 20–April 10; one brood.

Range of *Creciscus jamaicensis.*—The United States and southern Ontario, breeding in fresh water marshes easterly and in coastal marshes westerly; winters in California and the Gulf States south to Jamaica and Guatemala.

Range of *C. j. coturniculus.*—Pacific Coast of the United States from Puget Sound to Lower California. Only known breeding station salt marshes near National City, California.

Distribution in California.—Probably of general occurrence both in fresh and salt-water marshes during migrations. Common or sporadically abundant (as revealed by high tides) in the salt marshes tributary to San Francisco Bay and in Tomales Bay. Casual on the Farallons (2 records). The breeding grounds tributary to San Diego Bay are the only ones so far exploited.

Authorities.—**Cooper** (*Porzana jamaicensis*), Proc. Calif. Acad. Sci., vol. iv., 1868, p. 8 (Martinez and Alameda); *Ridgway*, Am. Nat., vol. viii., 1874, p. 111 (orig. desc. of *Porzana jamaicensis* var. *coturniculus*, type locality, Farallon Ids.); *Ingersoll*, Condor, vol. xi., 1909, p. 123, figs. (San Diego Bay; nesting habits, photos of nest and eggs, etc.); *Cooke*, U. S. Dept. Agric., Bull. no. 128, 1914, p. 35, map (distr.); *Grinnell, Bryant and Storer*, Game Birds Calif., 1918, p. 304 (desc. occurrence, habits).

ABSOLUTE size, whether of birds or bales, is a matter for mathematicians and stevedores—it is all in the day's work; but relative size is a matter for poets and rhapsodists, and children withal,—a thing to fire the imagination and feed the fancy. Your Black Rail is as big as a Song Sparrow—nearly; but he comes of a race that is due to be as big as a dove

or a chicken, a race that has, moreover, furnished giants, such as the *Notornis* or "Moho," of New Zealand, which has a body two feet long. So the sparrow-sized body of *Coturniculus* proclaims it a pygmy among its kind and arouses our interest at once. Now dye the bird the color of swamp muck, and set it to playing hide-and-seek in a situation where it has every advantage of obscurity, and you have issued an ornithological challenge whose piquancy is felt by every amateur and fought for by every professional. Although the bird is probably to be found at some season of the year in every considerable tidal marsh in the Pacific Coast States, and may occur extensively inland, every record of the occurrence of the California Black Rail *outside of San Diego* is eagerly scanned; and those who have even seen the bird in life are a small and select company.

The comings and goings of a Black Rail are as obscure as those of a meadow mouse. One's chances of seeing it casually are about as good as those of picking up a lost coin of a specified denomination. The writer, who has seen something of swamp life, has glimpsed only two in his experience, one straggling across a country road at dusk, the other flushing sharply from his feet in the Estero at Santa Barbara—only to be lost a moment later, and forever, when it plumped into the salicornia a dozen feet away. Only in the special circumstance of high tides may one hope to see the bird in numbers, and these are manifestly unlawful occasions, like a shipwreck or a hotel fire at night.

Coturniculus broke into print when, in 1874, Ridgway described a bird, a waif picked up on the Farallon Islands, as *Porzana jamaicensis* var. *coturniculus* Baird [MS]. From this circumstance it was long known as the Farallon Rail, even after mainland records began to appear. Dr. Brewster, of Boston, ever alert in matters of Californian ornithology, reviewed, in 1907,[1] the evidences of distribution and relationship presented by twenty-six skins, of which twenty-two had been collected by Mr. C. A. Allen at Point Reyes, October 24th to November 26th, 1897—evidently under the circumstances of high tide already mentioned. Mr. J. H. Bowles established "farthest north," November 10th, 1910, by taking three specimens near Tacoma, Washington (unless we accept the affirmation of Mr. J. W. Merritt, of Spokane, that he had shot the Black Rail near Sprague, Washington, and had seen it "repeatedly" thereabouts). A recent report[2] of an injured bird picked up on the street at San Bernardino confirms our belief that the California Black Rail is at least partially migratory, and that its movements are not confined to the coastal marshes.

To the oölogists of San Diego, however, belongs the chief credit for having brought the ways of the California Black Rail to light.

[1] Auk, Vol. XXIV., April, 1907, pp. 205-210.
[2] Mr. Edward Wall in Condor, Vol. XXI., Nov. 1919, p. 238.

Mr. Frank Stephens, writing in March, 1909,[1] credits "a lad" with having obtained a deep insight into the nesting habits of *C. j. coturniculus* in the extensive stretches of salicornia just south of San Diego. The veteran oölogist, A. M. Ingersoll, evidently relying in part upon the experience of this same "lad," reports[2] the outcome of four seasons' intensive work in the marshes between National City and Chula Vista. Lastly, Laurence

Taken in San Diego *Photo by L. Huey and D. R. Dickey*

PACIFIC BLACK RAIL IN CAPTIVITY

TWO VIEWS OF THE SAME BIRD

M. Huey, working partly with and for Mr. Donald R. Dickey, confirms the essential conclusions of previous workers and adds much lively information of his own.[3]

All unite in testifying to the extreme difficulty of coming upon nests of the California Black Rail. Ingersoll made twenty-five special collecting trips to the colony to secure one bird and three sets of eggs. The nameless "lad" thought he was lucky if he found a nest in half-a-day's steady search. Huey has spent hours and even days on the rail marshes. Nests are hidden in the depths of the salicornia (*Salicornia ambigua*, a fleshy-leaved plant which grows to a height of a foot or two), and the heavy foliage had to be searched inch by inch, either by a deft swing of the foot or else on

[1] The Condor, Vol. XI., March, 1909, pp. 47-49.
[2] The Condor, Vol. XI., July, 1909, pp. 123-127.
[3] Reported in the Condor, Vol. XVIII., March, 1916, pp. 59-62.

hands and knees. In this way an area never larger than a hundred acres was scrutinized season by season.

The nests proper, cushions of broken bits of salicornia, are either placed on the ground or else on convenient shelves of matted vegetation. The eggs are invariably concealed from above by overarching foliage. Only rarely is a bird flushed under such circumstances, since she has a hundred chances to escape by stealth. With the slightest suspicion of interference, the bird deserts, and is indeed so sensitive that the mere passage of a stranger causes her to lose interest in her charge forthwith. Partially built nests and incomplete clutches, therefore, outnumber full sets several to one.

No Black Rail appears to have been detected at rest upon a nest, and actual observation of the bird's habits seems to be limited to those rare occasions, usually measured in seconds, when the bird will lift itself a foot or so above the salicornia, and straggle off a rod or so with dangling

Taken in San Diego

NEST AND EGGS OF PACIFIC BLACK RAIL

Photo by Donald R. Dickey

hands and knees. In this way an area of larger than a hundred acres was soon searched out by scent.

The nest proper consists of broken bits of salicornia, are either placed on the ground or else on convenient shelves of matted vegetation. The eggs are invariably concealed from above by overarching foliage. Only rarely is a bird flushed under such circumstances, since she has a hundred chances to escape by stealth. With the slightest suspicion of interference, the bird deserts, and is indeed so sensitive that the mere passage of a stranger causes her to lose interest in her charge forthwith. Partially [illegible] complete clutches, therefore, outnumber full sets several to one.

No Black Rail appears to have been detected at rest upon a roost, and actual observation of the species's habits seems to be limited to these rare occasions when, roosting on the ground, the bird will flit itself a few inches above the salicornia and struggle off a roof or so of it, dragging

California Black Rail

About ⅔ life size

CALIFORNIA BLACK RAIL. *Photo by Dwight W. Tarbox.*

feet. On occasions still rarer the birds have made sustained flights, as though to quit the locality outright; but almost as usually they have changed their minds midair, and come straggling back to disappear somewhere near the home premises.

Sad evidence the searchers have found of the heavy odds against which this tiny rail does seasonal battle. An "unusually" high tide, which by the way usually occurs in the springtime, will sweep the colony clean, and leave the eggs to settle as random flotsam. As a consequence, waif eggs, or "floaters," are a commonplace of oölogical experience. The unusually durable quality of these eggs has been observed, insomuch that many of these floating treasures are known to have been the product of the previous season. The effect upon the unformed, or unguarded, conscience, of this tempting array of potential building material for "composite" sets, had best be left to the imagination. With definite exception of these gentlemen whose names have been cited, it is still, unfortunately, true that composite sets from this classical locality have been widely circulated.

Perhaps a word of caution upon this point may not be amiss, for there have been unwitting offenders. The conclusions of science, any science, must be based upon an array of exactly known facts. The validity of a conclusion must depend upon the integrity of the evidence. In a science, such as that of comparative oölogy, where the integrity of the facts must depend chiefly upon human testimony, honesty is everything. Without it investigation is at a standstill. Science suffers and the community is cheated of its rights. You can deceive a scientist by a false statement of facts, just as you can deceive the fire department as to the existence of a fire; but when you do, and whether you are caught at it or not, it is the community—your neighbors and friends—which has to foot the bill. Now the placing together of eggs which do not belong together, and calling them a "set," may not be as harmful in its immediate effects as a false alarm for the fire department, but it is just as truly cheating. For our understanding of life processes it is just as necessary to know the parentage of an egg as it is in human society to know the authenticity of an heir presumptive.

We have spoken of the nesting of the California Black Rail in the past tense and with a certain detachedness—the classical colony near San Diego was wiped out of existence by the flood of 1916, and no candidate has yet arisen to take its place.

No. 309

Florida Gallinule

A. O. U. No. 219. **Gallinula galeata** (Lichtenstein).

Synonyms.—Mud-hen (confused with the Coot). Red-billed Mud-hen. American Gallinule.

Description.—*Adult:* General color blackish slate, darkening, pure black, on head and neck and on crissum, centrally; extensively white on middle of belly; lengthened flank-feathers boldly blotched with white; and lateral under tail-coverts definitely and showily pure white; back and wings heavily overlaid with deep olive-brown; edge of wing white, and bluish dusky feathers in lining of wing tipped with white. Frontal shield and base of bill red, the latter tipped with yellow; exposed tibia reddish, tarsus and toes greenish, changing to blue on the joints; irides red or reddish brown. *Immature birds* are duller, especially on the bill and feet, and extensively white below, with frontal shield more or less undeveloped. *Downy young* are black, with sprinkling of silvery filaments on chin. Length of adult 304.8-355.6 (12.00-14.00); wing about 177.8 (7.00); tail 76.2 (3.00); bill with frontal shield 44.5 (1.75); tarsus 57.2 (2.25).

Recognition Marks.—Teal size; dark slaty coloration distinctive for all but *Fulica americana*, from which it is distinguished by bill extensively red and by brighter, purer red of frontal shield, by its somewhat smaller size, and by its more retiring habits.

Nesting.—*Nest:* A well constructed basket of cattail leaves or sedges built up out of water or placed on broken-down rushes from one to three feet above water of swamp—in any case provided with runway leading down to open water. *Eggs:* 6 to 10, 13 of record; ovate or elongate ovate, yellowish olive-buff, cartridge-buff, or pale dull pinkish clay-color, spotted or blotched rather sparingly with rich chocolate, which is sometimes smeared or "self-toned," and occasionally with vinaceous gray under-shell markings. Av. size 44 x 31 (1.73 x 1.22); index 70.4. *Season:* May–June; one brood.

General Range.—Warm temperate and tropical America. Breeds from central California, Nebraska, Minnesota, Ontario, and Vermont south through the West Indies and Mexico to Argentina and Chile. Winters from southern California, Georgia, and the Gulf Coast southward.

Distribution in California.—Fairly common summer resident in southern portion of State west of the desert divides and north to Santa Barbara. Found also in the San Joaquin-Sacramento Valleys north to Sutter County (Belding). Winters very sparingly, possibly throughout its breeding range.

Authorities.—**Newberry** (*Gallinula galeata*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 96 (San Francisco); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 33 (s. Calif.; nesting dates); *Bangs*, Proc. New Engl. Zool. Club, vol. v., 1915, p. 96 (syst.; N. Am. form described: *Gallinula galeata cachinnans*).

IT IS a common misfortune of men to be overshadowed by the presence of others neither more deserving nor more clever, but only a little more self-assertive. A similar misfortune has befallen the Florida Gallinule. The accident of association, together with the still greater accident of similarity to the multitudinous "Mud-hen," has completely obscured this bird's claim to public recognition. Even in those regions where both

are common, the lakes and marshes of southern California and the San Joaquin Valley, the Coots outnumber the Gallinules twenty to one. As a result, the really more distinguished and gallant Florida Gallinule is, in California at least, a tradition observed only by birdmen,—the author, or authoress, of certain eggs found in swamps, meekly accepted and no questions asked.

Gallinula—literally *little hen*—is in appearance a sort of connecting link between ducks and chickens, but in habit she is an aquatic rail. On the one hand, she swims freely and dives readily to escape a pursuer. If undisturbed, she moves upon the surface of the water rather daintily, nodding the head and perking the tail with each stroke as if she were working her passage. When under water the bird makes all speed for shelter, where, if sore pressed, she is said to cling to the submerged stems of water-plants, allowing only the nostrils to protrude for air. On the other hand, the water-hen scuttles over the surface of submerged vegetation, or threads the reeds with amazing alacrity, or else ranges the grass on the dry borders of the swamps.

But a bird, like a woman, deserves to be praised by a sincere admirer. The description of the lowly fowl left us by Dr. Brewster[1] will not soon be surpassed; for he wrote under the inspiration of first discovery. A few of his paragraphs are obligatory.

"Sometimes one appeared, sometimes the other, but the male the more frequently. He was a truly beautiful creature. With the exception of the yellow tip, his bill was scarlet, and this color extended back over a broad frontal shield which at a little distance looked like the red comb of a laying hen. At every movement of the head this brilliant color flashed like a flame. When he swam in under the bushes it glowed in the dense shade like a living coal, appearing and disappearing as he turned toward or from us, and often catching the eye when all other trace of him was lost. In the sunlight his breast appeared to be of a rich bluish plum color, at other times slaty. The legs were greenish yellow, the head black, the neck nearly so, the wings and back cinnamon or reddish brown.

"His manner of swimming and of feeding from the surface of the water was very like that of a Coot. He sat high and accompanied the strokes of the feet with a forward-and-backward nodding motion of the head and neck, accentuated at times as he reached out to seize some tempting morsel. On land he walked like a Rail, threading his way deftly among the stems of the bushes and tall rushes, stepping daintily, lifting and putting down his feet slowly, and almost incessantly jerking up his tail with a quick, nervous motion which caused the under coverts to flash like the

[1] Auk, Vol. VIII., Jan. 1891, pp. 1-7; "A Study of Florida Gallinules with Some Notes of a Nest Found at Cambridge, Massachusetts" by William Brewster.

sudden flirt of a handkerchief. As he picked his food from the vegetation at his feet, the head and neck were shot forward and downward at intervals of about a second with a peculiarly vivid, eager motion. His manner of walking and feeding also suggested that of the Guinea-hen, the body being carried low and in a crouching attitude, while the movements of the head partook of that furtive swiftness which is so characteristic of this barnyard fowl.

"Our Gallinule at most times, whether in action or repose, was a bird of slender shape and graceful outline, his carriage light yet firm, the play of the body lithe and strong. While preening his feathers, however, his attitude was often stiff and awkward, and the ruffling of his plumage made him appear nearly as portly as a duck. Again, the motion of flight was ludicrously awkward and uncouth. When, frightened by a glimpse of us through the flags, he rose and flew with legs hanging down, wing-beats feeble and labored, the whole bearing was indicative of strain and exhaustion, which received an added emphasis from the abrupt reckless drop into the bushes which ended the flight."

Although more or less associated with the Coots, the Gallinules keep much more to the shelter of the reeds, and they are much more difficult to flush. Their presence in the swamp is betrayed at nesting time by a succession of varied and animated notes which now resemble the Coot's, and now differ sharply from them. A common frog-like outburst, *kup* or *bup*, I cannot certainly distinguish from the Coot's note of disturbance. An amorous note of the male is decidedly rail-like, crepitant, to be exact, *tick'et—tick'et—tick'et—tick'et.* For the rest, one must appeal again to Dr. Brewster, who had the advantage of studying isolated pairs: "Sometimes they gave four or five loud harsh screams, very like those of a hen in the clutches of a Hawk—only slower and at longer intervals; sometimes a series of sounds closely resembling those made by a brooding hen when disturbed, but louder and sharper. Then would succeed a number of querulous, complaining cries, intermingled with subdued clucking. Again I heard something which sounded like this: *kr-r-r-r, kruc-kruc, krar-r, kh-kh-kh-kh-kea-kea*, delivered rapidly and falling in pitch toward the end."

Gallinules allow themselves an even greater latitude than Coots in the choice of nesting sites, save that they do not often nest in open water nor in exposed situations. The nest itself is a shallow basket of coarse dried grasses or cat-tail leaves, bedded in broken-down reeds or else built up on floating vegetation. I have seen nests as high as two feet above the water, and others which were veritable arks of bulrushes supported by the water itself. Occasionally these structures ride the water so freely that they will rise with the flood; but usually their dependence upon surround-

ing reed stems is so close that they would be overwhelmed by a rise in the water. Mr. Verdi Burtch reports[1] a pair of Gallinules which built up their nest when thus threatened, and elevated the eggs ten inches in a single day.

Eggs to the number of six or eight, rarely more, are deposited in this basket, and incubation may begin before the complement is reached. The eggs, both in shape and coloring, proclaim their affinities with the Rail. Although lusterless when fresh, and averaging perhaps a little more richly spotted, liver-brown on a background of cartridge-buff, the eggs can be almost exactly duplicated by those of the King Rail (*Rallus elegans*) or California Clapper Rail (*R. obsoletus*). Now and then one comes upon Coots' eggs which have liver-brown markings instead of blackish, but those of the Gallinule are much larger, and the texture of the shell is coarser.

A brood of Gallinule chicks—tiny black fellows with funny *silver* whiskers—are fully as cunning as any raised on shore. Indeed, I do not know of a more heartening sight in nature than the maternal tenderness of a mother Gallinule, with her wise cluckings and her graceful bobbings, attended by the earnest obedience of these tiny bobbers and patterers. The little fellows will peep lustily if but a weed-stem separates them from their fond parent; and, indeed, how otherwise could they subsist in this place which looks to them like a trackless Amazonia of gigantic forests!

No. 310

American Coot

A. O. U. No. 221. **Fulica americana** Gmelin.

Synonyms.—Mud-hen. Water-hen. Crow-duck. Poul d'eau. Ivory-billed Coot.

Description.—*Adult:* General color blackish slate, bluer-tinted above, browner-tinted below; head and neck pure black; lower scapulars and interscapulars tinged with olive-green; edge of wing, exterior margin of first primary, tips of secondaries, and lateral and posterior under tail-coverts white. Bill ivory-white, a dark brown spot near the tip of each mandible; frontal shield brownish red; tarsi and feet greenish; toes margined by scalloped flaps. *Adult in winter:* Plumage lightened below by whitish tips of feathers; frontal shield reduced in size. *Immature:* Similar but more extensively tipped with whitish; frontal shield still further reduced; red spots on bill wanting; bill obscure flesh-color or with olive tinge. *Downy young:* Nearly bald on crown; general color slaty black; head and neck decorated with orange-colored bristly filaments; remaining upperparts with similar but paler filaments. Bill orange-red, narrowly tipped with black. Length about 381 (15.00); wing 186.7 (7.35); tail 55.9 (2.20); bill (including frontal shield) 44.5 (1.75); tarsus 53.3 (2.10); middle toe and claw 78.7 (3.10).

[1] Auk, Vol. XXXIV., July, 1917, p. 319.

The American Coot

Recognition Marks.—Crow size, to appearance; substantially uniform coloration (slaty black); white bill; lobate feet; known from preceding species by somewhat larger size; bill not red and red of frontal shield more brownish.

Nesting.—*Nest:* A bulky mass of tules, cattail-leaves, or fresh-cut sedges, moored in shallow water, or built up on damp ground, or else more or less supported and concealed by growths in deeper water. *Eggs:* 6-15, 16 of record; ovate or elongate ovate, dull yellowish buff or yellowish olive-buff, finely, sharply, and uniformly sprinkled with deep purplish red or seal-brown, appearing blackish. Av. size 49.5 x 33 (1.95 x 1.30); index 66.6. *Season:* April 15–June 15 (July at higher altitudes); one or two broods.

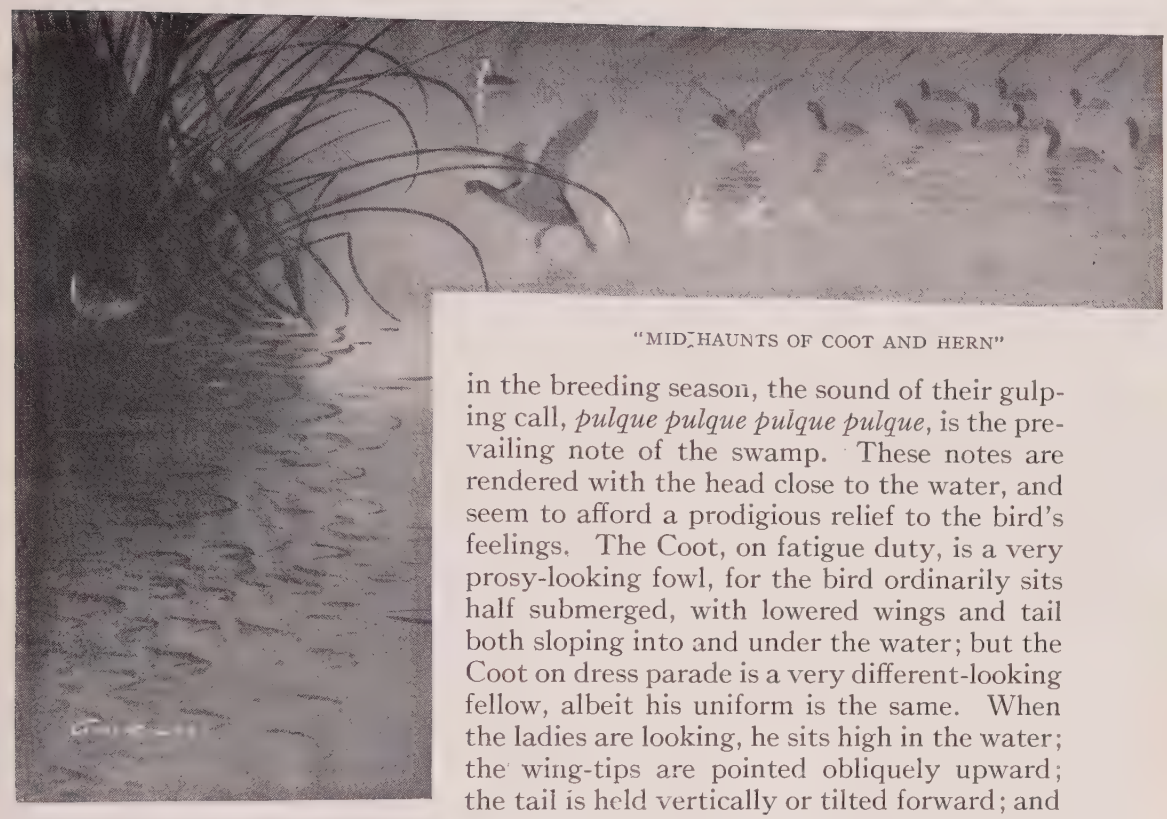
General Range.—Chiefly North America. "Breeds from central British Columbia, southern Mackenzie, Manitoba, Quebec, and New Brunswick, south to northern Lower California, Texas, Tennessee, and New Jersey, and also in southern Mexico, southern West Indies, and Guatemala; winters from southern British Columbia, Nevada, Utah, the Ohio Valley, and Virginia, south to Colombia; casual at Ft. Yukon, Alaska, and in Greenland, Labrador, and Bermuda" (A. O. U. Check-List, 3rd Ed.).

Distribution in California.—Abundant resident in suitable localities throughout the State. The breeding stations in the warmer sections are more or less deserted at the end of the season, and it is surmised (Grinnell, Bryant and Storer) that an altitudinal migration takes place. The Coot population of southern California is greatly augmented in winter, and many birds resort to salt water.

Authorities.—Gambel (*Fulica americana*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 224 (California); *Grinnell*, Univ. Calif. Publ. Zool., vol. v., 1908, p. 54 (San Bernardino Mts.; desc. nests, growth of young, etc.); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 23 (San Joaquin Valley; habits, etc.); *Cooke*, U. S. Dept. Agric., Bull. no. 128, 1914, p. 43, map (distr. and migr.); *Grinnell, Bryant and Storer*, Game Birds Calif., 1918, p. 313 (desc., occurrence, habits).

WHEN a canvas canoe propelled by a double-bladed paddle grows big upon the horizon and then brushes noisily against the weedy outpost of some tule swamp, an ominous hush falls over the scene, a silence broken only by the rustling of the arum tops. You saw birds from the distance, but every man Jack of them has fled. The reeds will tell no tales. Presently a grebe relieves the tension by snorting—that is the word—then dives suddenly to quench his ill-timed mirth; next a leaden figure steals from behind a distant clump of reeds and glances this way and that apprehensively. It is only a man in a boat—perhaps—she *did* want to visit that snail-bed before the sun got too high. So she advances, not without many misgiving hitches of the head, across an intervening stretch of bare water, and disappears behind a screen of reeds. The passage successfully accomplished, another Mud-hen, and another, ventures forth, the last one sniffing scornfully over the alleged danger. Confidence restored, the invaded precincts begin to re-echo to their wonted sounds of life, splashing and noise of pursuit, and mellow notes of several sorts. Only sit quiet and your stranger presence will soon be accepted as matter of course.

Where unmolested, Mud-hens fill about as large a place in the economy of a well-conducted swamp as do chickens in a barnyard. Especially



"MID-HAUNTS OF COOT AND HERN"

in the breeding season, the sound of their gulping call, *pulque pulque pulque pulque*, is the prevailing note of the swamp. These notes are rendered with the head close to the water, and seem to afford a prodigious relief to the bird's feelings. The Coot, on fatigue duty, is a very prosy-looking fowl, for the bird ordinarily sits half submerged, with lowered wings and tail both sloping into and under the water; but the Coot on dress parade is a very different-looking fellow, albeit his uniform is the same. When the ladies are looking, he sits high in the water; the wing-tips are pointed obliquely upward; the tail is held vertically or tilted forward; and two white patches of feathers, one on each side of the tail, are flashed into view and carried prominently.

Courtship is largely a matter of pursuit. In this both pursuer and pursued rise, or only half rise, from the water, with much floundering and splashing. And they proceed only a rod or two when both fall back exhausted, the female usually well in advance. This is mere gallantry on the part of the male, and exaggerated pretense on the part of both. When the male is in earnest, the pursuit is carried on under water as well as above it. Much time is spent by enamored couples in simply gazing into each other's eyes. A pair will face each other, beak to beak, with necks stretched out full length upon the water, and paddle about for minutes together in fascinated circles. The hinder parts, meanwhile, are carried high like those of a swan. This *vis-à-vis* pose is also a menace on the part of rivals, and is the inevitable preliminary of any cock fight. In this the birds appear to depend upon nail more than upon tooth, for they lean back upon the water, bracing with their wings, behind, and kick at each other most absurdly. After such an episode, which the female, as likely as not, has interrupted,

all the interested parties float about with ruffled feathers and outstretched heads laid low, each apparently in a sort of trance of self-satisfaction.

Coots are highly gregarious at all times. Although the necessities of the nesting season enjoin a somewhat wide dispersal, there is no such thing as privacy in the Coot's affairs. This makes for loose morals; and although some preference for mates, with a working partnership, is undoubtedly effected, it is probable that intercourse is more or less indiscriminate. This is evidenced by the readiness with which other cocks are disposed to butt in upon any chase in progress, quite after the manner of the domestic fowl.

Taken near Santa Barbara *Photo by the Author*

THE SIGNAL

THE FLASH OF WHITE ON THE UNDER TAIL-COVERTS IS THE "FOLLOW ME" SIGN

The copulation of Coots, a momentary affair at best, is accomplished upon or under the water and involves at least the complete submersion of the female. Bearing in mind this fact, as also the pugnacity and the amativeness of the Coot, which, in the former respect at least, is equal to that of the barnyard fowl, I believe we have the key to certain strange conduct which has been witnessed upon several occasions in connection with the discovery of a nest. One of the interested birds, presumably the male, rises upon the water and treads vigorously in a crouching position, much as a bird would do in copula. But there is no bird there! Is he not then setting up the *appearance* of the act, a little exaggerated perhaps, in order to excite jealous rage and pursuit, and so of course diverting attention from the imperiled nest? Viewed from any lofty height this is a ridiculous performance, but the poor fellow knows only the range of emotions to which he himself would respond. The female, too, on occasion flashes her sex charms as a decoy ruse, with such indifferent success that not one observer in a hundred is aware of what is happening. More sensibly, she splashes vigorously, so as to distract attention by sheer noise; or else she strikes the water suddenly with her feet and makes a startling sound, like the plunge of a muskrat.

Every one is familar with the shuffling manner in which a Coot rises

from the water, floundering and kicking to get up steam; then lumbering off at a low height only to splash down again at what it supposes a safe distance. Under the spell of persecution the birds learn to get up more nimbly, and once under way, prove to be not ungraceful flyers. In flight they carry their legs at full length behind them, and seem to use them quite cleverly as a rudder, to supply the deficiencies of the abbreviated tail.

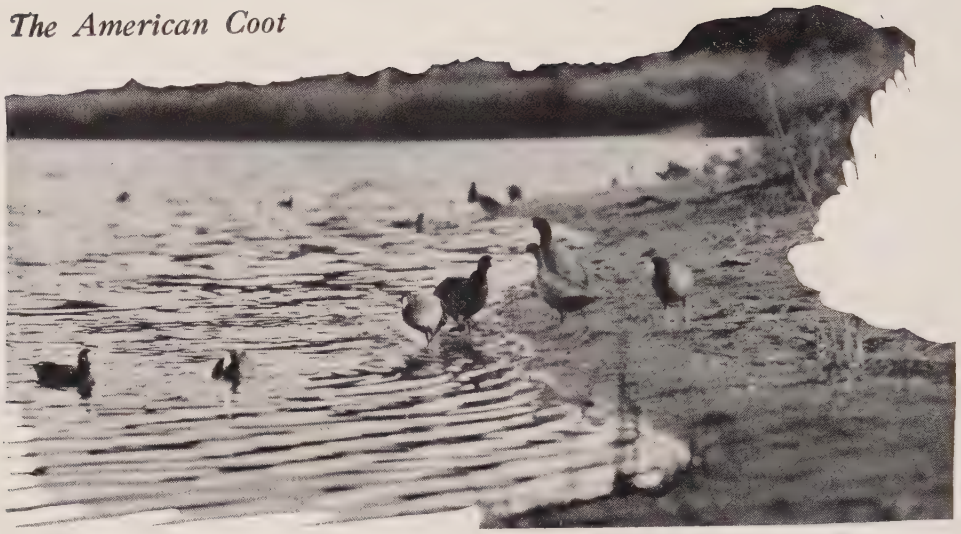
Whether flying or diving or walking, the mud-hen enjoys a highly varied diet. While much of its food consists of snails and water bugs and aquatic larvæ, it feeds heavily upon water plants and herbage. Upon a northern lake I watched a flock of mud-hens feeding upon a long-leafed water plant which grew two or three rods from shore and in some depth of water, say six or eight feet, and which could be obtained only by diving. In diving, the Coots leaped upward and turned a half somersault in the air, quite after the fashion of the grebe, and they brought the leaves to the surface in dripping beakfuls to be devoured piecemeal. The birds are

Taken in San Francisco *Photo by the Author*

THE CROWD

quite capable, likewise, of gleaning grain from the bottom of a duck-pond, and on this account have gotten themselves cordially disliked by the sportsmen.

While chiefly a fresh-water bird, the Coot infests brackish ponds as well and has no aversion to the salt, salt sea, if only an easy living is



Taken near Santa Barbara *Photo by the Author*

THE BATHING BEACH

promised. In winter, therefore, they gather in considerable numbers at the sewer outlets which disgrace some of our coastal cities and defile alleged bathing beaches.

As a pleasant offset to these offensive recollections, is the sight of a flock of mud-hens foraging on shore. At Stow Lake, for example, in Golden Gate Park, the festive Coots swarm over the banks in search of grass, which they pluck after the fashion of geese. The keepers have in many instances lined the shore with brush to keep the birds off the tender herbage; but where they cannot crawl, the birds will fly, so that such protection is practically worthless. It is a pretty sight to see, as we did one day, a flock of forty mud-hens feeding industriously on a sloping greensward, while a dozen California Quails darted about amongst them, like children at a picnic.

Wherever absolute protection is afforded, the mud-hens will become as tame as chickens. Feeding the mud-hens, then, is a favorite afternoon pastime at Stow Lake. Some of the "mob" photographs shown herewith are evidence of the author's weakness in this direction. I found the birds very active, and nimble to a fault in securing my offerings of crumbs. In fact, although I was very anxious to encourage the ducks, not one crumb in ten, however skillfully thrown before some expectant Mallard or Pintail, but was snapped up by the agile Coot. While the duck was making up his mind that that white something on the water might be edible, the Coot behind him had risen, shot over the water, snapped up the morsel and off again with vibrating head—vibrating so that none might snatch it from his beak before he had time to down it. So intent did the Coots

become on the chase that they would crowd together where the crumb was going to fall, and in the scrimmage which followed it was not unusual for one or more birds to be forced up off the water—birds literally two stories deep. Never a bird was left to undisturbed enjoyment of his catch, and many a morsel was halved and quartered before it disappeared. A particularly large piece would send its owner scudding over the water, if it were half way across the pond, and his progress was continually intercepted by halfbacks and fullbacks tackling on the slant. There was some bad feeling engendered, and I had time to witness again that curious cock fight wherein the combatants lie back on the water with wings outstretched by way of stays, and, with heads cocked forward, kick at each other with vicious intensity.

Although the Coot bids fair to thrive under cultivation, there is one situation, and that in his favorite haunts, where he never feels at home. If he is caught out anywhere in that area of tall stiff grass which

Taken in Washington *Photo by the Author*

BIRD TRACKS

THE FLEEING BIRD, DISTINGUISHED BY A WHITE PATCH ON THE TIPS OF THE SECONDARIES, MAY BE DESCRIED AT THE LEFT EXECUTING THE LAST KICK

surrounds a good many of our swamps, and especially if the observer comes up between the Coot and the water, the bird knows he is fairly trapped and will as likely as not stop suddenly and stand absolutely motionless. On such occasions, I have caught them by hand without a struggle—playing possum—and friends have done the same, although the bird

appeared to be very much alive when released either in the air or upon the water. It would appear that the bird cannot launch to wing on account of the impeding grass, and, realizing its plight, attempts deception instead.

By way of nesting the Coot puts a hatful of speckled eggs on a bulky heap of broken sedges or tules. This accumulation may be placed either on dry land near some waterway, or in various depths of water in the weedy or reedy margins of a lake. Not infrequently nests are built on the water and moored to standing reeds, after the fashion of Grebes,—with this difference, however, that the Coot under such circumstances always chooses dried weed-stalks, or crumpled bulrush stems for nesting material, so that the buoyancy of the submerged portion will lift the surface of the structure high and dry above the water. A runway or "gang plank" of matted rushes is usually provided, and this is anchored or steadied in such fashion that the nest will not be upset by the weight of the approaching bird.

Taken in San Diego County *Photo by the Author*

n/12 AMERICAN COOT

Since it is not possible to do justice to the relationships of birds in any linear taxonomic arrangement, I prefer to stress the tie existing between the *Ralliformes* and the *Galliformes*. Whatever other connections we must recognize for these two groups,

there is undoubtedly a close affinity both in structure and in habit between them. We should doubtless have clearer insight into the phylogenetic history of the Coot, if we were able to interpret the meaning of the chick's downy plumage. As is well known, the young of any animal repeats in the successive stages of its growth the developmental history of its race. Bearing this fact in mind, a brief description of a baby Coot will not be without interest: General color black, the down of body plumage everywhere interspersed with longer hair-like feathers, the terminal or exposed portion of these pale orange on upperparts, intensifying to bright orange-red around chin, sides of face, and back of head, forming together with their black bases, now exposed, an absurd tonsure; short feathers of lores and ring of minute feathers about eyes still redder orange; top of head bare, forehead, except central line and space over eyes, livid purple, changing on crown to pale red; bald area modified by tiny rows of starting feathers; bill black at tip with a speck of white on top, thence to base passing through four shades of red, pale vermilion or saturn red, coral, light maroon, and purplish maroon; underparts modified to dull gray by whitish tips of projecting hairs; feet bluish gray. Surely the remote ancestors of the now plebeian Coots must have been gay birds!

Taken in Washington *Photo by the Author*

A HATFUL OF SPECKLED EGGS

"Could anything exceed the selfishness of a young Coot? Here is one, the eldest of a prospective family of seven. He has been hatched at least a minute and a half, possibly two minutes. When the enemy appears he has a clear perception of the danger, but instead of waiting to warn or defend his brethren *in ovo*, he promptly scrambles over the side of the nest and paddles off to safety. Heartless infant!"

So runs an entry in the author's note-book. And another entry pertaining to the birds whose portraits are shown herewith recites how at the tender age of two days the chicks sought first to escape by diving. They soon tired of this exercise, however, for although they used their wings for paddles—a habit long since abandoned by their nearer ancestors—the effort to keep their buoyant fluffiness submerged for any great length of time appeared to exhaust them. Thereafter it was plain swimming for

Taken in Merced County *Photo by the Author*

BALD-HEADED BABIES

them; but as often as the hand came too close to one of the chicks, it threw itself backward upon the water into a defensive pose, and kicked out as bravely as ever its father had done a few weeks before. Out of the mouths of babes and sucklings—shall be proclaimed the history of their remoter ancestry. Evidently the practice of pedal pugilistics is an ancient one with *Fulica americana*.

Of the Coot as a game bird the author is not prepared to speak at length. Youthful slayers of mud-hens there will always be, but the serious pursuit of this artless and ignoble fowl by grown men is one that I refuse to discuss. The bird enjoys the same seasonal protection as that afforded

the ducks, but there is no "bag limit" prescribed. This omission accords with the well known practice of sportsmen of "killing off the mud-hens" at the beginning of each season, so that they will not share the duck feed. This unpopularity with the sporting fraternity was once the cause not alone of the Coot's downfall, but of the postponement of some very much needed legislation for the protection of the shore-birds. I will tell the story, even if it is at the expense of the present senior senator from California. In the legislative session of 1913, at the instance of the California State Audubon Society, and through the courtesy of the Assembly Committee on Game, the author was permitted to draft the provisions of a measure afterwards known as the "Guill bill," extending protection to some forty odd species of birds, chiefly rails, cranes, herons, and shore-birds. In this form the bill passed both houses "unanimously"; and the State Audubon Society in convention assembled, some thirty days after the adjournment of the Legislature, was in the very act of celebrating the important victory, when word came that Governor Johnson had vetoed the bill. Some sporting friend had gotten the gubernatorial ear and had denounced our measure as "freak legislation," because it had extended protection to the execrated mud-hen. The Coot was the goat and has been ever since; but we had the satisfaction, a little later, of seeing the Federal Government take a hand, and the Federal Regulations, supported by the act of the California Legislature of 1915, now protect thirty-four of the species for which exemption was provided by the Guill bill.

No. 311

Mongolian Pheasant

Introduced. **Phasianus torquatus** Gmelin.

Synonyms.—Ring-necked Pheasant. Chinese Pheasant. Denny Pheasant.

Description.—*Adult male:* Sides of head largely bare, with livid skin; top of head light greenish; short plumicorns dark green; throat and neck all around black, with rich metallic reflections; a *white cervical collar* nearly meeting in front; fore-neck and breast, well down, shining coppery red with golden and purplish reflections; sides rich fulvous with black spots; belly mostly blackish; above with indescribable intricacy of marking,—black, white, copper, fulvous, pale blue, viridian green, glaucous green, etc., etc. (we are not morally responsible for the coloring of this marvelous exotic); tail much lengthened, mostly greenish fulvous, edged with heliotrope-purple and cross-banded with black. *Adult female:* Much plainer, mostly brownish and without white collar; the upperparts more or less spotted and mottled with dusky; the underparts nearly plain buffy brown; the tail-feathers barred for their entire length, dusky and

whitish on a mottled brownish ground. Adult male length 762 (30.00) or more, of which more than 406.4 (16.00) is tail.

Recognition Marks.—Size of domestic fowl. Long tail and white collar distinctive.

Nesting.— *Nest:* On the ground, of dried leaves, grasses, etc., usually in grass tussock or under bush. *Eggs:* 8 to 15; dark olive-buff, vinaceous buff, or isabella color, unmarked. Av. size 40.9 x 33.3 (1.61 x 1.31). *Season:* April–July; two or three broods.

General Range.—Native in eastern Asia from the valley of the Amur south to Canton, China, and west through eastern Mongolia. Introduced and established in the Pacific Coast region from British Columbia to northern California.

Distribution in California.—Variously introduced in many widely separated localities. Apparently well established in the northern humid coastal section and in Owens Valley. Also, perhaps successfully, in Tulare, Kern, and Santa Clara counties.

Authorities.—Belding, Land Birds Pac. Dist., 1890, p. 8 (Santa Cruz Co.); *C. H. Merriam,* Ann. Rep. Dept. Agric., 1888, p. 484 (food); *Wall,* Condor, vol. xvii., 1915, p. 59 (San Bernardino; nest and eggs); *Grinnell, Bryant and Storer,* Game Birds Calif., 1918, p. 30 (introduction in California); p. 572 (desc. habits, etc.).

WITHOUT QUESTION the introduction of the "China" Pheasant (*Phasianus torquatus*) to America in 1881 marked a new era in the game-bird life of the Pacific Northwest. Credit for this shrewd move belongs to Judge O. N. Denny of Oregon, then consul general at Shanghai; and the bird is still called by many enthusiastic admirers the "Denny" Pheasant. Unlike that of the English Sparrow, the outrageous profiteer of misguided sentimentality, the importation of the Mongolian Pheasant had been most carefully considered. Judge Denny studied the facts, and knew the high reputation which the bird enjoyed in its native land, both as a table bird and as an economic factor in the subjugation of insect pests. He knew, too, the necessity of drawing fire from our harassed and over-hunted native birds; and he knew the hardiness, adaptability, and fecundity of this Chinese fowl. The experiment promised well, and was carried out, therefore, with great care and diligence. The promise of these early experiments has been fulfilled in every particular, not alone in western Oregon but in Washington and British Columbia; and the China Pheasants are now so thoroughly established in the economic life of the Pacific Northwest that continued prosperity and usefulness is only a matter of sensible regulation. But similar experiments persistently carried out in California have been, to say the least, less successful. It has been found that the Ring-necked Pheasant is subject to rather exacting climatic requirements. The first requisite is humidity, and this is found to perfection only in our northwestern coastal counties. Elsewhere the presence of abundant water in swamps and flooded sections has measurably supplied the bird's

necessities, and we find it most thoroughly and hopefully established in the lower Santa Clara Valley and in the Owens River country.

There are many factors which conspire to make the Mongolian Pheasant the favorite, as it will be in suitable sections the dominant, game bird of the West. In the first place, the male bird is a vision of loveliness, gorgeous in coloring beyond the ability of a mere word-painter to depict, occupying in this regard the same relation to other gallinaceous birds that our Wood Duck does to other water-fowl. A cock Pheasant brought to bag is both a dinner and a picture, a feast and a trophy.

Then, and chiefly, the China Pheasant is a good rustler. Evolved in his native land under conditions of the most strenuous competition, the pheasant race has developed both adaptability and endurance, staying qualities which give the bird an assured position in any situation remotely similar to that afforded in China. Under protection, Pheasants avail themselves of all the privileges, ranging freely across farms and cultivated areas, finding sufficient cover in neglected fence-rows or wayside thickets, and becoming so bold as to disregard the passer-by, and even to venture into the farmyard to feed with the domestic fowls. Under persecution the bird as quickly develops wariness and cunning, and is able, under necessity, to maintain a thrifty existence in the forests and uncleared river valleys, or in the swamps, in complete independence of men. It is even able, and this is a vital point, to quickly discriminate between open and close season, and to resume the warier life under the behest of a single day's discipline.

As a game bird, also, the China Pheasant ranks high. Its flesh is above the average, and its pursuit involves all the elements of sagacity, skill, and endurance which constitute upland shooting sport. The bird lies well to a dog—that is, when cornered—but if he has a running chance, the dog must win his point. Pheasants are cunning sneaks and swift runners, and the cocks will sometimes travel at top speed for half a mile before admitting defeat and crouching for the wing test. The bird leaps into the air with a sudden cry, pauses for a fraction of a second to get his course, then away on vigorous wings.

The Pheasant is usually thus pursued with gun and dog, after the fashion observed in case of all native grouse, and that moment of indecision which always comes after the bird is up is the favorable moment for the gunner. But it is no mean test of skill to stop a Pheasant in midflight when the hunt is *en battue*, after the English and Continental fashion.

Stubble fields and open situations are the preferred range of the Ringnecks, but they are quite at home in the jungle. They are especially to be found at the borders of clearings, where their haunting presence is likely to be resented by the pioneer who is trying to carve a garden out of a

forest. Some damage they undoubtedly do, just as chickens would, but it is to be suspected that those who complain most bitterly of the "devastations" wrought by this fowl are seeking cover for their practice, all too frequent, of potting these luscious birds out of season.

Fecundity is another trait of this hardy fowl. The birds are polygamous, and the cock is prepared to fight for the possession of the largest possible harem. The females raise two or three broods in a season, but not content with this, the amorous cocks seek alliance with native and domestic species. Hybrids formed by the crossing of China Pheasants and Sooty Grouse are not infrequent, and the introduction of wild blood into the farmyard results in interesting and not unprofitable forms.

Cock Pheasants crow somewhat after the fashion of Chanticleer, producing a sort of double explosive sound, *squawk-squawk*, accompanied by a vigorous clapping of wings. They are sure to crow immediately upon hearing thunder; and once, in Owens Valley, near Independence, after a particularly sharp clap of thunder I could trace the course of the aqueduct (open at this place) by the successive squawks of the Pheasants stationed along its course. In the North I have heard the neighboring pheasants crow simultaneously when a blast of Hercules powder "let go" under a stump.

No. 312

Mountain Quail

A. O. U. No. 292. **Oreortyx picta picta** (Douglas).

Synonyms.—Painted Quail. Northern Mountain Quail.

Description.—*Adults:* A greatly lengthened crest of two superimposed, very narrow, black feathers (of which the lower usually much shorter); foreparts in general, including breast, broadly slaty gray (Payne's gray, nearly) changing on nape and sides of lower neck to bright olive-brown (dresden brown) of back, wings, and tail; throat chestnut (claret-brown), bordered sharply on sides by line of black continuous to eye; this in turn by narrow band of white; forehead ashy, region about base of bill, narrowly, white; lower middle of belly, narrowly, buffy; remainder of belly, broadly, lower sides, and flanks, rich chestnut (claret-brown), interrupted on sides of belly by a longitudinal series of bold broadly scaled black and white bars, somewhat variable as to width and admixture with chestnut; crissum black, faintly touched with chestnut; inner secondaries and tertials broadly edged with white on the inner webs (usually tinged somewhat with buffy or tawny), forming a conspicuous lengthwise border on folded wing. Bill dusky, paling below; feet dull brownish. Females are less extensively chestnut below and have crests averaging a little shorter than those of males. *Near adult:* Olive-brown of upperparts paler and duller, the feathers faintly edged with whitish. *Immature* (4 to 6 weeks old?): Upper plumage extensively and finely mottled with shades of brown and dusky (suggesting Bonasine affinities), the half-grown crest touched with brown terminally; chin white, the sides of throat broadly

black; chestnut tinge appearing on flanks and thighs; the slaty of breast less blue, the feathers tipped with white. *Chick:* Upper plumage entirely mottled, buffies, browns, and duskies; breast much as in immature, but throat plain buffy; belly and flanks buffy- and dusky-barred. Average of 10 adults: length (skins) 251 (9.88); wing 129.7 (5.11); bill 13.7 (.54); tarsus 35.9 (1.41).

Recognition Marks.—Robin size, but nearly small grouse in apearance; throat chestnut; long straight crest distinctive; "larger" wing-sound in rising, as compared with Valley Quail.

Nesting.—*Nest:* A slight depression in earth, lined scantily with dead leaves, pine needles, or other forest litter, sometimes placed under shelter of bush, log, or fallen branch. *Eggs:* 5 to 15; short ovate and pointed; light buff or pale ochraceous buff, unmarked; often stained brownish through contact with wet leaves. Av. size 33.7 x 25.3 (1.33 x 1.00); index 75.2. *Season:* June (April 7–August); one brood.

Range of *Oreortyx picta.*—The Pacific Coast states and Lower California.

Range of *O. p. picta.*—The humid coastal district of western Washington, western Oregon, and northwestern California.

Distribution in California.—Resident in the humid coastal belt, broadly, into Trinity County, in the North; south to Sonoma County. Reappears sparingly in the mountainous district of Santa Cruz County, and in western Monterey County south at least to Big Creek.

Authorities.—Douglas (*Ortyx picta*), Trans. Linn. Soc. London, vol. xvi., pt. 1, 1829, p. 143 (orig. desc.; interior of Calif.); *Ridgway*, Auk, vol. xi., 1894, p. 193, pl. vi. (distr.; crit.); *Grinnell, Bryant and Storer*, Game Birds Calif., 1918, p. 513 (desc. occurrence, habits, etc.).

No. 312a San Pedro Quail

A. O. U. No. 292a. **Oreortyx picta confinis** Anthony.

Synonyms.—Plumed Partridge. Plumed Quail. Mountain Partridge. Southern Mountain Quail.

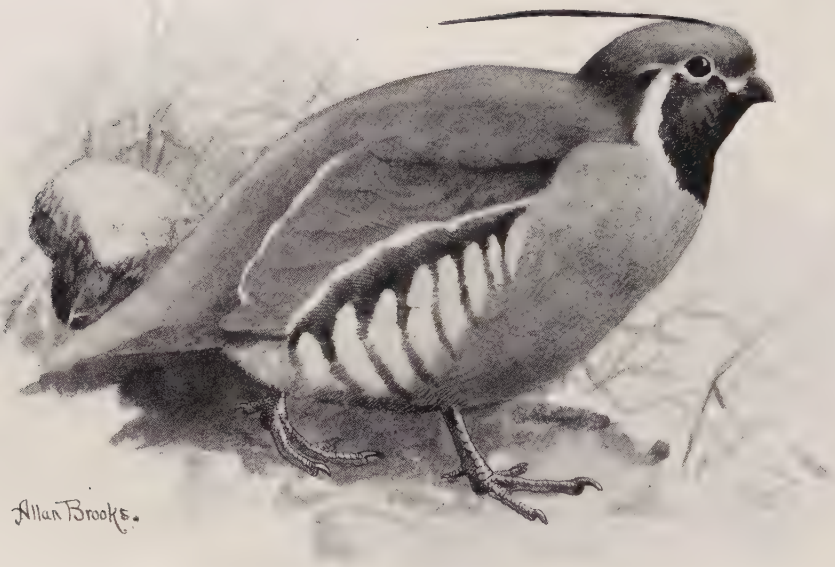
Description.—Similar to *O. picta picta*, but slaty blue of foreparts nearly or quite displacing olive-brown on nape and upper back; general tone of upperparts a little lighter and duller; forehead whitening; the border area of inner secondaries and tertials clear white and only slightly tinged with buffy.

Status.—This form was created in recognition of a slight *tendency*. Any one of the characters assigned above may be contradicted by individual examples from any locality, but the consensus of characters appears to hold. Other characteristics quite as in preceding.

Range of *O. p. confinis.*—Mountainous districts of the Pacific Coast states from northwestern Oregon (west of the Cascade Mountains) south through the Sierras and the southern coast and southern interior ranges of California, to northern Lower California, and east to extreme western Nevada,—resident throughout its range.

Distribution in California.—Found at middle levels upon all mountains, save those of the humid coastal district (where replaced by *O. p. picta*) and the most barren desert ranges. Occurs to the levels of some of the higher plateaus and retreats before the snows of winter.

Authorities.—Gould (*Ortyx plumifera*), Icones Avium, pt. 1, Aug., 1837, pl. 9 (orig. desc.; "California"); *Dwight*, Auk, vol. xvii., 1900, p. 46 (plumages and molts); *Judd*, U. S. Dept. Agric., Biol. Surv. Bull., no. 21, 1905, p. 58 (food); *Grinnell and Swarth*, Univ. Calif. Publ. Zool., vol. x., 1913, p. 228 (San Jacinto Mts.; habits; crit., as regards *O. p. confinis*).



MOUNTAIN QUAIL

TWO SENSES minister chiefly to our knowledge of birds, namely, sight and hearing. There are observers, and some of them very keen bird-men, who seem scarcely to be aware that birds have voices. Yet the information gained by the ear, if more limited in scope, is much more abundant, more stimulating or seductive, and more natural withal. For a bird under conscious survey, whatever his reactions, is scarcely natural. Often he is tense or distraught, but oftener still he is tame, timid, and subdued; whereas, a bird at a little distance, unaware of your presence, may enact a vocal drama of domesticity whose every line you may read; or he may utter his heart so fully, that you could scarcely wish to see the painted clay which gave utterance to such aspiration or purified desire. For myself I am content that the Hermit Thrush should be a voice of the high Sierras, and I am content that the Mountain Quail sounds a hundred bugling notes to one exposure of a skulking or a scurrying form.

The Mountain Quail's is the authentic voice of the foothills, as well as the dominant note of Sierran valleys and of bush-covered ridges. Spring and summer alike, and sometimes in early autumn, one may hear that brooding, mellow, slightly melancholy *too' wook*, sounding forth at

intervals of five or six seconds. Now and then it is repeated from a distant hillside where a rival is sounding. This note is easily whistled, and a little practice will enable the bird-student to join in, or else to start a rivalry where all has been silent before. And quite as frequently, in springtime, a sharper note is sounded, although this, I believe, is strictly a mating or a questing call, *quêelk* or *queelp*. This has alike a liquid and a penetrating quality which defies imitation, so that the unfeathered suitor is not likely to get very far in milady's affections. Thus, also, I have "witnessed" the progress of courtship and its impending climax in the depths of a bed of ceanothus where not a feather was visible. The *quilk* of the preceding days had evidently taken effect. The lady was there, *somewhere*. The mate was still *quilk*ing, but his efforts were hurried, breathless. Between the major utterances, ecstatic *took* notes were interjected. As the argument progressed I heard a low-pitched musical series, rapidly uttered, *look look look look look*. (But there was no use in looking). This series, employed six or eight times, was suddenly terminated by half a dozen *quilks* in swift succession, indicative of an indescribable degree of excitement.

Not less uncanny nor less fascinating are the vocal accompaniments with which a scattered covey of youngsters is coached or reassembled. If the little ones are of a tender age and the need is great, the parent will fling herself down at your feet and go through the familiar decoy motions; but if the retreat has been more orderly, the parents clamber about, instead, over the rocks and brush in wild concern. Once out of sight, the old bird says *querk querk querk querk*, evidently an assembly call, for the youngsters begin scrambling in that direction; while another old bird, presumably the cock, shouts *quee yawk*, with an emphasis which is nothing less than ludicrous.

On such occasions the mobile crest or plume which characterizes this bird is played to the utmost. The plume separates into its two component feathers and is thrust forward as far as possible, so that the anterior feather lies almost horizontally, while its fellow, usually a little shorter, bristles at an angle of thirty degrees, and all the other feathers of the crown bristle like porcupine quills. I was much interested also to see half-grown chicks wearing their nascent plumes *a la pompadour*.

Save in the extreme northwestern and southeastern portions of its range, the Mountain Quail is to be found in summertime somewhere between 2000 or 3000 and 9000 feet elevation, according to local conditions of cover. It inhabits the pine chaparral of the lesser and coastal ranges, but its preference is for mixed cover, a scattering congeries of buck-brush, wild currant, service berry, Symphoricarpus, or what not, with a few overshadowing oaks or pines. In the northwestern portion

of its range (*O. p. picta*) the bird comes down nearly to sea-level and accepts dense cover. In the southeastern portion, namely, on the eastern slopes of the desert ranges overlooking the Colorado Desert, the Mountain Quail, according to Mr. Frank Stephens, ventures down and nests at an altitude of only 500 feet. It is closely dependent here upon certain mountain springs, which it visits in common with *L. c. vallicola* and *L. gambeli*. Under certain conditions, therefore, its breeding range over-

Taken in Fresno County *Photo by the Author*

MOUNT GODDARD, FROM THE SOUTH
MOUNTAIN QUAIL COUNTRY

laps that of the Valley Quail. There are several instances on record of nests containing eggs of both species, and at least one hybrid has been found,[1] conjectured to be between *O. p. confinis* and *L. c. californica*.

The nesting of the Mountain Quail is conducted at the higher levels of its range. Ten or a dozen eggs, of a rich buffy hue, unmarked, line a scanty shakedown of grasses or pine needles, which almost invariably enjoys the shelter of a projecting rock, an arching tree-bole, or a thicket

[1] In Harvey County, Oregon. See Condor, Vol. XIII., Sept. 1911, pp. 149-151.

of brush. The female sits closely once incubation has commenced, and she appears to be much less sensitive to molestation than other gallinaceous birds. I nearly stepped on one coming down the trail off Mt. Shasta in July, 1916. The bird flushed so sharply that I did step on an egg which had rolled down into the path from a nest not over a foot away.

Brood joins brood at the close of the nesting season after the fashion of the *Lophortyx* Quails, but *picta*s never assemble in such numbers as did our earlier *californica*s. When the berries of the upper levels have been gleaned, the Mountain Quails begin a stately migration *on foot* to the lower levels in order to avoid the heavy Sierran snows. At such times they are said to be unwary, and even prefer the good walking of the open road to a laborious threading of the sage-brush. Hunters used to take advantage of this fact, and took excessive toll along certain well known valley routes. Since market hunting was abolished, however, the Mountain Quail population has been picking up. Although their broods are smaller than those of the Valley Quail, their enemies are fewer and their cover better. They are not great favorites with sportsmen, because they will neither lie to a dog nor rise at close quarters, but go scurrying away under the brush instead. When they do rise, however, it is with a very impressive wing-burst, more nearly akin to that of the Ruffed Grouse than that of a Valley Quail.

Mountain Quails, especially the younger birds, take ready refuge in trees, like fledgling grouse; but whether they sleep there I am unable to say. Mr. Frank Stephens (MS) says explicitly that they spend the night roosting in the thickest available trees; but the authors of "The Game Birds of California" declare, "This bird but seldom perches in trees, and as far as we know the adults never roost in one at night." It's up to you, dear reader. We don't pretend to know it all.

No. 313

California Quail

A. O. U. No. 294. **Lophortyx californica californica** (Shaw).

Synonyms.—Northern Valley Quail. California Partridge.

Description.—*Adult male:* A narrow recurved crest of five or six closely superimposed feathers, glossy black; a patch involving chin, throat, and sides of head below eye, glossy black; this bordered posteriorly by a broad line of white; another semilune of white across crown and curving backward along sides of occiput; adjacent region posteriorly black, changing to olive-brown of hind-crown and nape; forehead and fore-crown buffy, finely pencilled with black; breast, narrowly, sides of breast, and the tail slaty gray (Payne's gray); sides of neck and cervix broadly slaty gray, finely spotted

with white and finely ribbed and bordered with black, changing on upper back to clear olive-brown (Prout's brown to mummy-brown) of remaining upperparts; the inner webs of tertials ochraceous buffy or tawny, forming conspicuous stripes; sides the color of back, sharply striped with creamy white; lower breast, broadly, light ochraceous buff; upper belly centrally bright chestnut, on sides white, the three areas last mentioned presenting a handsomely scaled appearance, by reason of sharply-defined, curved, black borders; flanks, shanks, and crissum ochraceous buffy striped with dark brown; the lower belly dull buffy finely crossed by dusky. Bill blackish above, lighter below; feet and tarsi brownish dusky. *Adult female:* Somewhat similar to male, but without characteristic head markings, mottled olive-gray and white instead, on sides of head and throat; entire crown olive-brown; breast color of back; underparts without chestnut or central ochraceous, white instead—the borders of the scales brownish black; the crest somewhat reduced, olive-brown. Bill dull horn-color above, yellowish below. *Near adult male:* Throat dull gray progressively invaded by black; lower breast, centrally, finely buffy-and-dusky-striped, the advance and intensity of chestnut marking increasing age; above traces of wood-brown mottling on wings, and especially on tertials. *Chick:* Below whitish; above mottled buffy, brownish, and dusky; a brownish patch on crown and nape, foreshadowing that of adult. Chicks a week or more old are a highly variegated patchwork of woody browns, buffies, and duskies, more suggestive of an adult Sharp-tailed Grouse than of the plain-backed Quails. Av. of 10 adult males: length 245.7 (9.67); wing 109.6 (4.31); tail 80 (3.15); bill 11.1 (.44); tarsus 33.6 (1.32).

Recognition Marks.—Robin size; dense *recurved* crest; black throat of male; scaled appearance of belly and darker coloration distinguishes from *L. gambeli;* weight decidedly less than that of Mountain Quail.

Nesting.— *Nest:* A hollow in ground, lined carelessly with dead leaves or grasses and a few feathers, placed in shelter of weeds, thick grasses, fence-corner, logs, or projecting rocks, or, rarely, built up on brush-pile, top of stump, or even side of haystack. *Eggs:* 6 to 22, or more, usually 10 to 15; short-ovate, pointed, ivory-yellow or cream-color, finely and rather uniformly sprinkled, or coarsely spotted, or even blotched, with "golden brown" (dresden brown to mummy-brown or Prout's brown). Av. size 31.6 x 24.1 (1.24 x .95); index 76.6. *Season:* May–June 15 (July–Sept. 15 of record); one or two broods.

Range of *Lophortyx californica.*—Pacific Coast states and Lower California.

Range of *L. c. californica.*—Humid coast strip from southwestern Oregon to southern Monterey County; introduced into western Washington, Vancouver Island, and Colorado.

Distribution in California.—As above.

Authorities.—Shaw (*Tetrao californicus*), Naturalists' Miscellany, vol. ix., 1798, p. 345 (California); *Hoover*, Bull. Cooper Orn. Club, 1, 1899, p. 75 (destruction of quail eggs by snakes); *Beal*, U. S. Dept. Agric., Biol. Surv. Bull., no. 34, 1910, p. 9, pl. 1 (food).

No. 313a Valley Quail

A. O. U. No. 294a. **Lophortyx californica vallicola** (Ridgway).

Synonyms.—Southern Valley Quail. Topknot Quail.

Description.—Similar to *L. californica californica,* but paler and grayer, the slaty gray prevailing over olive-brown on back and wings (either entirely displacing it

Taken in the Ojai *Photo by Donald R. Dickey*

A GYPSY HOME

or leaving it irregularly irruptive or as a gloss; the breast of the female grayer, corresponding to change in color of back); flanks likewise more grayish; the ochraceous buff of lower breast slightly paler; the stripe on inner tertials pale buffy to whitish.

Status.—The progressive graying of this form follows the analogy of *Oreortyx picta confinis*, but it has been carried much further and is more definitely established.

General Range of *L. c. vallicola*.—Resident in Sonoran valleys and in foothills from the Klamath Lake region of southern Oregon south to Cape San Lucas (except the northwest coast district and the southeastern deserts) east to extreme western Nevada. Now widely introduced throughout the West.

Distribution in California.—Abundant resident at lower levels nearly throughout the State, save as displaced by *californica* in the northwestern fog belt and by *gambeli* in the eastern portions of the Mohave and Colorado deserts. Occurs, perhaps less commonly, east of the Sierras south to Owens Valley and the eastern desert ranges and extends its range over the western edges of the deserts, where it encounters, and perhaps hybridizes with, Desert Quail. Found also along the seacoast from San Luis Obispo County south. Introduced on San Clemente.

Authorities.—**Audubon** (*Perdix californica*), Orn. Biog., vol. v., 1839, p. 152 (Santa Barbara); *Ridgway*, Proc. U. S. Nat. Mus., vol. viii., 1885, p. 355 (orig. desc.; type locality Baird, Shasta Co.); *Williams*, Condor, vol. v., 1903, p. 146 (use of sentinels); *Judd*, U. S. Dept. Agric., Biol. Surv. Bull., no. 21, 1905, p. 47 (food); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 32 (San Joaquin Valley; habits, etc.).

No. 313b Catalina Island Quail

A. O. U. (unrecognized). **Lophortyx californica catalinensis** Grinnell.

Description.—"Similar to *L. c. vallicola* but about 9 % larger throughout, and coloration somewhat darker; similar to *L. c. californica*, but larger and much less deeply brownish dorsally" (Grinnell).

Status.—A dubitative form whose recognition involves the supreme exercise of the critical faculty. An independent comparison between five examples from Santa Catalina and ten *selected* specimens from the mainland sustains the claim of a slightly greater wing length for *catalinensis*, a more robust bill (about equal to maxima of *L. c. vallicola*) and especially robust feet and legs, which exceed the maximum average of *vallicola* by a millimeter or so.

Range.—Resident on Santa Catalina Island, Los Angeles County.

Authorities.—Grinnell (*Lophortyx catalinensis*), Auk, vol. xxiii., 1902, p. 262 (orig. desc.; type locality, Avalon, Catalina Id.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 52 (Catalina Id.; crit.).

GET RIGHT' UP. Get right' up. Get right' up. Is it the voice of conscience? or is it some patent new-fangled Californian alarm clock which thus admonishes us? It is an unearthly hour—not sunrise yet—What! a bird, you say? How interesting! It *is* a beautiful morning. There is the pungent smell of things newly rained on in the air, and a faint mist, like a host of ministering fairies, hovers over the budding roses. Perhaps the bird is right. Let's get up!

Glad summoner of springtime! Gallant pensioner of our lawns and hedges! Brave elf o' the nodding plume! Is there a heart in California that loves you not? Or an ear that does not thrill anew when it hears your sturdy call? What can we do to repay the kindness of your daily cheer? What less, indeed, than to give you the freedom of our premises, to let you glean for us a thousand seeded evils, and to let you parade, uncoveted, your saucy beauty? Stay, beautiful bird, and trust us, us whose tongues have never tasted your brothers' blood; us who would as soon frighten children as to violate your confidence. Woe is us that you must scuttle to the nearest cover and deliberate in anxious accents whether to fly or no. Woe! I say, and a plague upon the cause that brought you to this pass.

There! that is a very bad beginning for an account of "California's leading game bird." For ten years the author of "The Birds of California" has faced the task of expounding to his "fellow sportsmen" the glories of quail-shooting. Duty is written large in the expectation of a hundred thousand owners of guns. "Come," they say, "glorify for us the ardors of the chase, the rustle of expectation, the sudden hurtling of winged rockets, the quick eye and the accurate finger that stops the hurtling mid-sky, and the limp form retrieved from the sheltering bushes, the

count of the bag at the day's end. Recall to our pleasant recollection the skill of the cook who serves our birds and the daintiness of the white meat, an ounce or two to a portion, that graces our banquets." Gentlemen, I cannot do it. I wouldn't eat one of those pitiful remnants of departed glory, unless I were starving; and I never was anywhere near starving—were you? Did you ever really *need* the flesh of a little bird, a beautiful, happy bird? Forgive me and let me pass.

The Valley Quail's day begins in some bush or tree—a live oak, as like as not—where, in company with his fellows, he has spent the night secure from all anxiety as to foxes or coyotes.

After a visit to some spring or running stream where water is copiously imbibed, the chief business of the day, if in spring, is foraging on grass and other tender herbage; if in autumn, the gleaning of fallen weed-

Taken in the Ojai

Photo by Donald R. Dickey

A CRESTED BEAUTY
FEMALE VALLEY QUAIL ON NEST

seeds; or it may be a bit of grain, together with such crawling insects as come incidentally under review. The quantity and variety of weed-seeds consumed by these birds is amazing. Beal lists 73 species of seeds found in Quails' stomachs; and two birds, whose crop contents the in-

Taken at Los Colibris *Photo by the Author*

A "STOLEN" NEST, IN THE GARDEN

vestigator took pains to count, had about 2000 seeds each aboard. There is industry for you! and mightily profitable labor at that—for the farmer. If the day is warm, the middle portion is spent in retirement, again in the thick foliage of a tree. The siesta finished, the birds venture out again to provide another grist for their insatiable seed-hoppers, and to indulge a dust-bath, such as all fowls dearly love. As the twilight hour approaches, there is much scampering and calling, with some sportive pursuit, and a night-cap drink before the company is bedded again under its coverlet of thick green leaves.

The Quail's year begins some time in March or early April, when the coveys begin to break up and, not without some heart-burnings and fierce passages at arms between the cocks, individual preferences begin to hold sway. It is then that the so-called "assembly call" *ku kwak' up, ku kwak'*

uk, ku kwak' u k - k o , is heard at its best; for this is also a mating call; and if not always directed toward a single listener, it is a notice to all and sundry that the owner is very happy, and may be found at the old stand. Although belonging to a polygamous family, the Valley Quail is very particular in his affections; and indeed, from all that we may learn, is at all times a very perfect model of a husband and father. Even in domestication, with evil examples all about and temptresses in abundance, the male quail is declared to be as devoted to a single mate as in the chaparral, where broad acres may separate him from a rival.

The female spends some time casting about before she decides upon a nesting site, and during these days, as also during incubation, the male posts on a mound of earth or upon the summit of a bush, and calls out

Taken at Los Colibris *Photo by the Author*

AN EARNEST "SETTIN HEN"

from time to time with a vibrant *yawrk*. The nest itself is a mere apology, a layette of grass or a few leaves scraped together, but the site is usually well concealed in thick grasses, in a clump of ferns, under a protecting bush, nestled at the base of a haystack, or even hidden in the cranny of a rock.

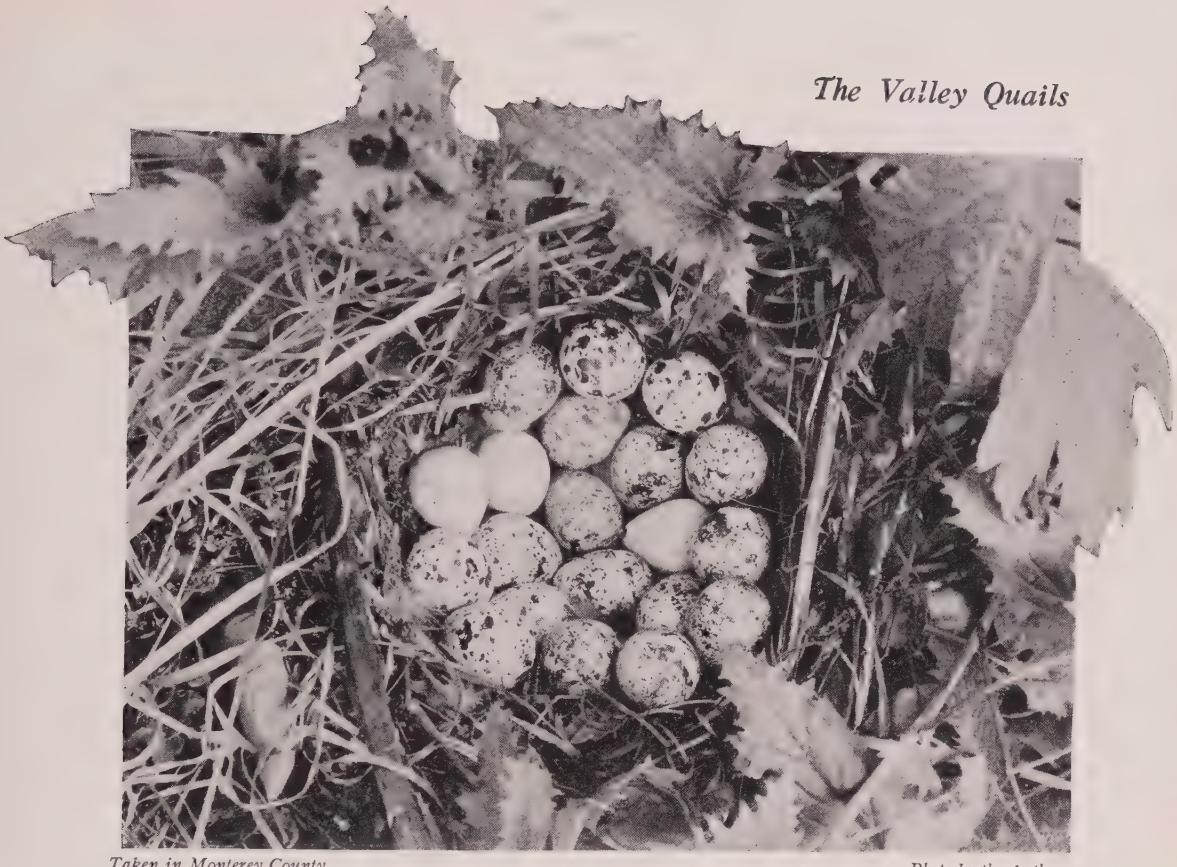
Taken near Santa Barbara
Photo by the Author
A CUBIST FLIGHT
VALLEY QUAIL TAKING TO WING

In the illustration shown on p. 1584 the nine eggs were quite invisible from above. On another occasion, at the Point of Rocks overlooking the Antelope Plains in Kings County, I found a deserted set of Quail's eggs in an old Road-runner's nest, placed eight feet from the ground in a cranny of the sandstone cliff and quite unapproachable save by flight.

Eggs are deposited daily, from nine or ten to twenty-odd, all told, with perhaps an average of thirteen or fourteen; and incubation, which is undertaken only upon the completion of the set, lasts from 21 to 23 days. The youngsters "run from the shell," and although they do not fly for a week or ten days thereafter, they are so well able to care for themselves that their parents rarely deem it necessary to employ decoy tactics upon the appearance of danger. There are solicitous cries, indeed, and warnings to keep still, but the babies know so well the value of their protective coloration that after a momentary scuttling for cover, they become immovable and invisible and all but undiscoverable. When the enemy has gone, the mother returns circumspectly with low anxious cries, *pit, pit, pit,* upon which the chicks release themselves one by one from the all-obliterating embrace of the mottled earth and go scurrying to safety. An observer, Mr. F. X. Holzner, of San Diego, reporting in the Auk,[1] tells of very different behavior under imminent danger: "While collecting birds near Lakeside on June 5, 1895, I walked unsuspectingly upon a bevy of Valley Partridges consisting of an old male and female with about fifteen young ones. They were in the crevice of a fallen cottonwood tree. On my stepping almost upon them, the male bird ran out a few feet and raised a loud call of *ca-ra-ho;* while the female uttered short calls addressed to her brood. Seeing us, she picked up a young one between her legs, beat the ground sharply with her wings, and made toward the bush in short jumps, holding the little one tightly between her legs, the remainder of the brood following her."

Several instances have come to notice of Valley Quails which have nested at a considersble distance above the ground. One such was fur-

[1] Auk, Vol. XIII., June, 1896, p. 81.



Taken in Monterey County *Photo by the Author*

n/20 VALLEY QUAIL

nished me by Mrs. Bagg, of 412 W. Montecito St., Santa Barbara. According to this lady, in the summer of 1910 a pair of these birds nested on a horizontal stretch of dense wistaria covering an arbor, at a height of ten feet from the ground. At first the nest was insecure, and one egg fell through to the ground, but the bottom was evidently repaired soon after, for there were no more losses. On hatching day the parent birds took station on the lawn below and called the chicks to them one by one as they tumbled off the trellis roof. The little fellows were oftenest stunned at first, but soon recovered and toddled off to join their fellows. Presently the parents called them together, led them off, and secreted them under a sidewalk a block away. After solemnly charging the little brood to remain together and motionless, the parent birds returned to look for delinquents. The last two chicks had fallen out after their parents had departed, and being evidently the weakest of the lot, had lain stunned on the ground for a longer time than usual; but as they were beginning to recover, Mrs. Bagg, in mistaken kindness, noting the absence of the old birds, gathered them up and took them into the house. The

rest of the story is told by another lady, a neighbor across the street, who had happened to observe the hiding of the chicks and the return of the parents. The lady first hastened down to the sidewalk to confirm her surmise, and found the instructed brood huddled together and absolutely motionless. She then returned and watched the old birds while they searched and called in anxiety upon the lawn, until further effort seemed useless, whereupon they returned to the infantile cache, withdrew the injunction of silence and led the brood away to the hills.

When I was rehearsing this incident to Mrs. O. D. Norton of Montecito, then residing at "Mira Vista," she related a similar story of a nesting on top of her house. The nest had not been discovered until the little ones were hatched and were seen running about on the roof. Part of the roof of the place is covered by a roof-garden pergola, which is buried under a mass of vines, and it was here, although fully thirty feet from the ground, that the nesting undoubtedly took place. Mrs. Norton declares that some of the chicks, at least, were carried to the ground in the beaks of the parent birds.

The discussion still rages as to whether the Valley Quail raises two broods a year or only one. It seems probable, however, that later nests are only second attempts on the part of birds who have lost their first broods. It must not be forgotten that young quails, as well as eggs in

Taken near Santa Barbara *Photo by the Author*

"OR EVEN HIDDEN IN THE CRANNY OF A ROCK"

the nest, are the staple diet of every power that preys,—snakes, coons, weasels, squirrels, skunks, badgers, foxes, coyotes, bobcats, jays, ravens, Cooper hawks, and horned owls. Think what an ungodly crew is arrayed against these gentle fowls, and you will cease to wonder at the fearful toll they have to pay in their efforts to perpetuate their kind. So terrible are these imposts, and so delicate the resulting balance of nature, that the deciding vote as to whether the Quail shall go or stay is cast by man. In particular, it is incumbent upon him, if he too is going to take toll, to see to it that his fellow depredators are deprived of their normal share. Bobcats and Quail cannot coexist, and as for the gopher snake, that much-lauded "friend of the farmer," I have seen his belly knobbed with Quails' eggs too often for him to expect forgiveness or immunity at *my* hands.

The Valley Quails are so essentially sociable, that neighboring flocks begin to draw together while the youngsters are still in their infancy. It is no unusual sight, therefore, to see a school of, say, three ranks, attended by half a dozen parent-teachers. With such conditions of augmented danger, they are likely to keep near the densest cover; and I have seen them threading the tules of Laguna Blanca with the agility of rails or marsh wrens. Two such aggregations of two and three families, respectively, I watched at one time from a reed-blind, as they deployed over the bare ground adjacent to the reeds. The count showed that one male of the quintette was posted on guard. The others led their flocks about warily, pausing ever and again rigidly, and as upright as soldiers. Again and again an American Kestrel (*Cerchneis s. sparverius*) passed overhead unfeared, but as often as the companies heard the "sharp-shin chitter" of the Bush-Tits in a distant live oak, they scurried for cover instanter. The joke of it was that there was no Sharp-shinned Hawk about, and that the Bush-Tits were making all this fuss over the recurrent passage of this same Kestrel.

Associated thus from childhood, contiguous flocks are likely to form permanent coveys numbering from twenty to sixty individuals. In such fashion they maintain themselves throughout the autumn and winter, learning flock tactics and cunning under the discipline of gunfire. They do not lie well to a dog, and those who hunt them use only retrievers. When approached, the flock scatters somewhat before hiding, and it rises in wisps and scattered bevies instead of with a single burst like the Bobwhite. This favors the hunter in allowing him successive shots; but the winging of these speedy bomb-shells is no easy matter, and we give the sportsman the credit of earning what he gets. The escaping birds often take to trees where, of course, no gentleman will shoot them, and the detection of their cowering forms, shrunk to the smallest capacity, is none so easy either.

Valley Quails, according to all accounts, are now greatly reduced in numbers. A half century ago they existed in almost incredible numbers, and flocks of from one to five thousand were regarded as commonplaces. In the old days, too, some destruction of grapes in the vineyard was complained of. Even now isolated vineyards, especially if in the hills and surrounded by chaparral, are likely to be plundered; but the larger operators, the raisin growers of the central valleys, do not complain, and it appears probable that the birds' consumption of weed-seed and menacing insects far outweighs the damage done.

The California Quail is noted for its hardihood, its versatility, and its adaptability. I have seen a wounded bird swim and dive with great aplomb. The species will maintain itself, if need be, in the depths of the chaparral; or, if allowed, it will run over our lawns and take a friendly bite with our chickens. Its recovery power is enormous. Whereas close shooting will nearly devastate a country, protection will bring the birds back in two or three years. Its fortunes are, moreover, closely involved with the course of the weather. During unusually dry seasons the birds do not attempt to breed. On the other hand, I am inclined to believe that the quails do raise two broods in unusually favoring circumstances. Apart from the weather, their fortunes are in our hands. No one of this generation ever saw too many quails. Whether, indeed, they might become a nuisance under a policy of absolute protection, I cannot tell, but until they do, I submit that the esthetic worth of these exquisite, gallant, and confiding fowls far outweighs their value as meat.

No. 314

Desert Quail

A. O. U. No. 295. **Lophortyx gambeli** Gambel.

Synonym.—Gambel's Quail.

Description.—*Adult male:* General pattern of head, chest, and upperparts much as in *L. californica*, but black of throat narrowly or scarcely bordered by white below; black of forehead tending to displace buffy—entirely successful on forecrown, where sharply defining white fillet, which in turn is carried a little further back; hind crown and nape bright chestnut (Sanford's brown); crest a little longer, less sharply recurved, and inclined to brownish; chest (narrowly), sides of breast, and cervix (broadly, changing on upper back), and tail, slaty gray (Payne's gray), with a tendency to darker shaft lines; the feathers on sides of neck and on cervix anteriorly lightly bordered and distinctly ribbed with chestnut (but *not* marked with white); remainder of back, wings and upper tail-coverts light brownish olive or buffy olive; stripe along inner tertials creamy buff to whitish; pattern of underparts subsimilar, but without scaled effect of feathers; sides, broadly, rich bay striped with white; lower breast, broadly,

plain ochraceous buffy; upper belly, broadly, black (where *californica* is chestnut); lower belly, etc., dull ochraceous buffy, unmarked centrally, on flanks and crissum striped with dull chestnut or brownish dusky. *Adult female:* In general, color tone strikingly similar to female *L. californica vallicola*, but in complete suppression of cervical white markings and abdominal scale-like bordering, following closely the pattern of its own male; no black anywhere; tendency to dark shaft-lines further developed, especially on breast; sides as in male, but bay somewhat restricted. *Immature and chick:* Pattern much as in foregoing form, but tone lighter, grayer, with less brown. Measurements (average of 5 males and 5 females): length 249.8 (9.83); wing 110.1 (4.34); tail 90.2 (3.55); bill 10.6 (.42); tarsus 31.7 (1.25).

Recognition Marks.—Robin size; recurved crest and black throat (of male only) much as in Valley Quail; underparts *not* scaled; bright chestnut of crown in male and dark chestnut sides *striped* with white, distinctive.

Nesting.—*Nest:* A depression in ground lined with grass or leaves; or occasionally placed on top of a stump or low horizontal limb; or else eggs deposited in elevated nest of other bird. *Eggs:* 8 to 22; short ovate, pale ivory-yellow, cream-color, or cream-buff, spotted and blotched irregularly with golden brown or purplish brown (dresden brown or Hay's brown to light seal-brown and aniline black). Av. size 31.2 x 24.1 (1.23 x .95); index 77.2. A set of 15 eggs taken near Tucson, Ariz., by F. C. Willard, May 24, 1913, shows the following extremes: 36.5 x 25.6 (1.44 x 1.01), and 23.6 x 19.5 (.93 x .77). The largest egg is thus 2¾ times the bulk of the smallest. Between these extremes there is a perfect gradation, there being in this set literally no two eggs alike. *Season:* May–June.

General Range.—Common resident in Lower Sonoran zone of the Southwestern States and northern Mexico, from the desert divide in southern California and northeastern Lower California east to the El Paso region of western Texas north to southern Nevada, southern Utah, and southwestern Colorado, and south to Guaymas, Sonora.

Distribution in California.—Abundant resident locally, chiefly in the vicinity of streams or springs, on the southeastern deserts; west to Hesperia and Banning; north to Amargosa and Death Valleys.

Authorities.—**Baird** (*Callipepla gambeli*), in Stansbury's Expl. Great Salt Lake, 1853, p. 334 (California); *Coues*, Birds of the Northwest, 1874, p. 432 (habits, molt, food, etc.); *Thurber*, Auk, vol. xiii., 1896, p. 265 (hybrids between *gambeli* and *vallicola*); *Grinnell and Swarth*, Univ. Calif. Publ. Zool., vol. x., 1913, p. 230 (San Jacinto Mts., habits, occurrence, etc.).

THE AMAZING fecundity of the desert is nowhere more clearly illustrated than in the case of this humble quail. To be sure, the species is nearly confined to the presence of water, which it must visit night and morning; but wherever at lower levels springs or water courses are to be found in Arizona and the adjoining states, there *gambeli* abounds. The Desert Quail loves cover—arrow weed, atriplex, mesquite—and though the birds will momentarily alight in bushes, when flushed they almost immediately drop to the ground and go scuttling off under cover. Pursuit is difficult where fear has once given them legs; and the adroitness with which a flock, all but unseen, will melt away and scatter unharmed before the alert gunner, is nothing less than uncanny.

But we spoke of fecundity, and the proof of this lies not so much in the size of the bag brought in as in the infallible undertone of Gambeline conversation which accompanies the traveler in his movements along the base of the foothills which overlook the Colorado Desert, or in the progress up the Gila River in Arizona. There seems to be no uniformity of opinion yet as to the notes made by these birds; but a close study would probably discover an exact parallelism between them and the notes of *L. californica*. At Potholes I have heard the questing call *kuh kwăă kuk*, in form almost precisely like that of the Valley Quail, but with an accent more drawling, less emphatic, and more southern. The call-note of the male bird, as when the female is nest-hunting, is *whay o'eh*, or, more sharply, *quayl*. In approaching a lurking covey of young birds, one is likely to hear soothing *daay daay* notes. "Keep still" is their message, and a profound silence follows a closer approach. When the danger is over and the youngsters dare breathe again, the mother bird calls *wreck'up, wreck'up* in sharp, anxious tones.

The need of fecundity is emphasized by a consideration of all the dangers which beset the infant steps of the Desert Quail. Snakes abound in their country and they are always keen for quail meat, with or without toast. Owls take toll; and coyotes secure many victims at night, especially during the breeding season. Being more exposed at all seasons than are her California sisters of the chaparral, the Desert Quail nests twice in the season to make up for losses. Although she nests typically upon the ground, as do all other members of this family, the Desert Quail exhibits a decided tendency to seek more elevated quarters. Goaded to desperation by the coyotes, the Quails will make nests on the tops of protected stumps, in hollows of mesquite trees, or in Thrashers' nests new or old,—anything that offers escape from ground-prowling enemies. In the mesquite forest below Tucson one of our party took a set of nine eggs from the nest of a Crissal Thrasher, placed three feet up in the center of an almost impregnable thorn bush. Another nest, which I found in the Gunsight Mountains, occupied a chamber excavated in the side of an old rat's nest. But the bird in this case probably sought shelter from the heat rather than escape from vermin.

That the Quail should trust the rat is rather surprising, but I recall having startled a covey of very young quails which took instant refuge in a rat's nest. We gave diligent search, in spite of an armament of over-shadowing chollas, and we found the chicks, at last, huddled in an underground passage with the rat herself no more than a foot away.

There can be little question that *Lophortyx californica* and *L. gambeli* have developed from a common stock. A moment's consideration of the head-pattern in the males of the two species shows this. The pat-

terns, indeed, are almost identical in outline, but on the forehead, where *californica* is creamy or yellowish white threaded with blackish, *gambeli* is black threaded with creamy; and the crown of *gambeli* is a vivid (an over-roasted) chestnut, where *californica* is of a most subdued grayish brown. The pattern of the under-plumage, also, while quite different, is still traceably similar. The two species thus evolved in sundered environments have recently been thrown together along a line roughly indicated by the eastern base of the desert-fronting mountains of southern California. It is interesting to notice that invasion has been on the part of the western bird, *vallicola*, and that hybrids have resulted. Whether or not the offspring of these cousinly reunions are fertile has not been established, as it easily might be by experiment with birds in captivity. So friendly, indeed, have become the relations of the Quails on the eastern base of the San Jacinto Mountains, that the three species, viz.: Mountain, Valley, and Desert, are reported drinking from the same spring; and that they figure pathetically in the same bag there can be no doubt.

Owing to the more restricted variety of desert vegetation, the Gambel Quail does not depend upon weed-seed to the same extent as its western kinsmen. Although it eats seed and grain and wild fruit of almost every available kind, two-thirds of its fare consists of browse, the tender leaves and shoots of various plants, especially mesquite; and, in winter, buds of mesquite and willow. Gardens are sampled on occasion, and some damage to fruit is registered by early settlers, who are apt to be a little over-sensitive as to their rights. Mistletoe berries are eagerly devoured by these birds, and for this fare the lowly quail will invade the tops of the highest mesquite trees. Here they meet the Shining Flycatcher (*Phainopepla nitens*), the petulant, the dandified, the imperious; though I never saw them yielding before the reproaches of this perturbed fop, nor yet of his more spiteful mate.

No. 315

Dusky Grouse

No. 315a Sooty Grouse

A. O. U. No. 297a. **Dendragapus obscurus fuliginosus** (Ridgway).

Synonyms.—Blue Grouse. Mountain Grouse. Hooter.

Description.—*Adult male:* General plumage sooty slate, color deepest, nearly or quite black, on upper back and in ring about throat, lighter, slaty, on breast and belly, feathers mottled with buffy and tawny on wings, back, and sides, with ashy (lightly) on rump and upper tail-coverts, and with large admixture of white on lower belly and under tail-coverts; throat heavily flecked with white; shoulder-patches of

pure white, more or less concealed; subterminal area of tail clear slaty-black; terminal band ashy gray, .30-.60 wide; comb over eye and concealed spot of naked skin on side of neck, the tympanum, orange-yellow. Bill black; feet with black soles. *Adult female:* Ground-color of male, everywhere, save on concealed webs of rectrices and quills and on middle of belly, more or less mottled by ochraceous, tawny, and warm browns (sudan brown to argus brown), the markings on back falling more or less into bars; often also lightly washed or skirted, especially on breast and upper tail-coverts, with ashy; some sector-shaped markings of white on wings, and plumage bordering slaty central area of belly extensively varied by white. *Young birds* are much like the female. *Chicks* are warm yellowish, clear or orange-banded below, above varied in irregular pattern by ochrey, tawny, and black. Adult male, length: 508-558.8 (20.00-22.00), sometimes 609.6 (24.00); average of seven males: wing 232.4 (9.15); tail 162.6 (6.40); bill 20.3 (.80). Female, length: 431.8-482.6 (17.00-19.00); wing 214.9 (8.46); tail 130.8 (5.15); bill 19.3 (.76).

Recognition Marks.—Crow size; dark slaty coloration; tail definitely tipped with white, as compared with black tail of *D. o. richardsoni.*

Nesting.— *Nest:* On ground, a slight hollow lined with a few twigs, grasses, and stray feathers, usually under protection of tree, bush-clump, or grass. *Eggs:* 6 to 12, 16 of record; pale cream-buff or pinkish buff, sharply and sparingly freckled with reddish brown (cinnamon-brown to chestnut-brown). Av. size 52.3 x 34.5 (2.06 x 1.36). *Season:* May–June, according to altitude; one brood.

Range of *Dendragapus obscurus.*—Pacific Coast and Rocky Mountain districts from Alaska, southern Yukon, and southwestern Mackenzie south to Mt. Pinos (California), western New Mexico, and central Arizona. Resident wherever found.

Range of *D. o. fuliginosus.*—Humid coastal district from Sitka south to northwestern California.

Distribution in California.—Common resident of the humid coastal strip, chiefly in the Douglas fir forests, east to Hayfork and Kuntz (Trinity County) and south to Seaview, Sonoma County (Grinnell).

Authorities.—Sclater (*Tetrao obscurus*), Proc. Zool. Soc. London, 1858, p. 1, part (Trinity Mts.); *L. Kellogg*, Condor, vol. xiii., 1911, p. 119 (Hayfork, Trinity Co.); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 60 (status in Calif.).

No. 315b Sierra Grouse

A. O. U. No. 297c. **Dendragapus obscurus sierræ** Chapman.

Description.—"Differs from *D. o. fuliginosus* in much paler coloration above, in the heavier vermiculation of the entire upper surface, practical absence of neck-tufts, whiter throat, and paler underparts."

Status.—If we may be allowed to substitute the word *perceptibly* for "much" in the foregoing description, this very "light" form will pass muster. The whiter throat is apparently the most constant character.

Range of *D. o. sierræ* (Almost wholly included within California).—Common resident in coniferous forests of the mountains from Mt. Shasta south along the inner coast ranges at least to Mt. Sanhedrin, and along the Sierras south to the Piute Mountains in Kern County, and on Mt. Pinos in Ventura County. Also found upon the Warner Mountains and the White Mountains (and so presumably into Nevada).

Authorities.—Sclater (*Tetrao obscurus*), Proc. Zool. Soc. London, 1858, p. 1, part (Yosemite Valley); *Belding*, Zoe, vol. iii., 1892, p. 232 (food); *Muir*, Our National Parks, 1901, p. 216 (habits); *Chapman*, Bull. Amer. Mus. Nat. Hist., vol. xx., 1904, p. 159 (orig. desc.; type locality, Echo, El Dorado Co.).

Taken in Eastern Washington *Photo by W. H. Wright*

SOOTY GROUSE ON NEST

ALTHOUGH RATED AS *D. o. fuliginosus*, THIS BORDERLINE SPECIMEN IS SCARCELY DISTINGUISHABLE IN A PHOTOGRAPH FROM THE CALIFORNIA BIRD, *D. o. sierræ*.

THE "BLUE" Grouse, "Wood Grouse," or "Mountain" Grouse, in some one of its geographical races, is found throughout the heavily timbered areas of the West, ranging from sea-level to timberline, according to the degree of local humidity. It has a strong preference for fir (or spruce) timber, on account of the density of cover offered; and its range in California is determined chiefly, though not entirely, by this factor. And of all fir trees the Douglas Fir (*Pseudotsuga taxifolia*), miscalled "Oregon Pine" by our local trade, is the prime favorite. In the sheltering branches of this tree the grouse takes refuge in time of danger; from its commanding elevation he most frequently sends forth the challenges of springtime; and in its somber depths he hides himself throughout the winter season.

The Blue Grouse is by nature one of the most confiding of fowls. If it were not for the discipline of gun-fire, now three-quarters of a cen-

tury old, the bird would no more than step aside to watch the traveler pass, or at most flutter up to a low-lying branch the better to observe. There are few traces left, however, of this once confiding character. Save for its unconquerable propensity for hooting, the bird is shrewd enough to maintain itself in the very heart of dangerous country. To my knowledge a small company of Sooty Grouse survived in Ravenna Park, Seattle, till the year 1910, and they pastured on land worth at least $15,000 per acre.

The Grouse's year begins in March or April, according to altitude, at which season the males begin to hoot. This operation is conducted chiefly in the trees, but as the season advances and love-making becomes more earnest, the birds resort to the ground or choose stations on some prominent stump or bowlder. The bird, as a rule, is one of the most phlegmatic of fowls, and his courting antics, grotesque enough in themselves, are conducted with a gravity which makes them even more absurd. Whatever the bird's situation in hooting, the air-sacs of the throat, chest, and neck are first inflated. These auxiliary parts are capable of enormous dissension, insomuch that the total bulk of the sacs, together with their covering feathers, during excitement, exceeds that of the body itself. The hooting, or grunting, notes of this Grouse are among the lowest tones of Nature's thoroughbase, being usually about C of the first octave, but ranging from E flat down to B flat of the contra octave. *Hoot, hoot, hoot, tu-hoot,* the legend runs, although there is a prefatory note of the same character which is inaudible at a distance; and the bird not infrequently adds another at the end, after the slightest appreciable pause, as though he required a fraction of a second in which to recover from the effort of the double note. There is in the act of utterance a corresponding pulsation of the air-sacs, but these can serve only as a sounding board, for the noise is made in the syrinx, and may be passably imitated in that of a freshly killed specimen by placing the thumb and forefinger over the apertures, and blowing at the proper intervals through the entering windpipe. The sound may also be well reproduced by the human voice, and we have offended many a "hooter" ere now by challenging in his preserves.

As the hooter becomes vehement he struts like a turkey-cock, spreading the tail in fan-shape, dropping the wings till they scrape the ground, and inflating his throat to such an extent as to disclose a considerable space of bare orange-colored skin on either side of the neck. This last certainly makes a stunning feature of the gallant's attire, for Nature has contrived that the feathers immediately surrounding the bald area should have white bases beneath their sooty tips. During excitement, then, as the concealing feathers are raised and reversed, a brilliant white

circlet, some five inches in diameter, suddenly flares forth on each side of the neck, to the great admiration, no doubt, of the observant hen.

These more emphatic demonstrations are probably reserved for such time as the hen is known to be close at hand, for I have never frightened a strutting cock without finding a female hard by, at least at no greater distance than the lower branches of a neighboring tree. She has responded to the earlier calls of the male by a single musical *toot* note, uttered at intervals of approach; but once arrived at the trysting place she has become very shy, and will take no part in the celebration, save by a few tell-tale clucks and many coy evasions. On these occasions, also, the cock works himself up into such a transport that he becomes oblivious to danger, so that he may be narrowly observed or even captured by a sudden rush.

The Wood Grouse are possibly polygamous, but contests between the males are infrequent, and there is no great disparity in numbers between the sexes, so that the male, oftener than otherwise, mates but once during a season. At least he is not known to carry on separate amours abreast. When the female has laid her complement of eggs, from five to nine, in a shallow, leaf-lined depression at the base of a tree, bush, or rock, the male joins himself to a small company of his widowed fellows, or else sulks out the season in ineffectual hooting.

In choosing a nesting site the female is not at especial pains to find concealment, relying rather upon the protective harmony of her surroundings,—how securely may be noted in

Taken in Eastern Washington
Photo by F. S. Merrill

A NEST IN THE PINE WOODS
AS BEFORE, THE RACE DEPICTED IS *D. o. fuliginosus*

the accompanying illustration, where the cover was of the slightest, yet perfectly in keeping. The bird even sits with half closed eyes, in order

Taken in Washington *Photo by Dawson and Bowles*

SOOTY GROUSE ON NEST
AN EXAMPLE OF PROTECTIVE HARMONY

that the glint of the eye, the "high light," may not betray her presence. The creamy buff eggs, also, with their light brown spots and splashes, are comparatively inconspicuous when exposed.

Grouse are close sitters, and will at times suffer even the touch of the hand before bursting off in agitated and noisy flight. I once pottered about for half an hour in the immediate vicinity of a sitting grouse whose presence was unsuspected. She let me pass within five feet of her without betraying her anxiety. She even allowed me to chop out a Chickadee's nest ten feet up in a stub hard by, and that with gesticulations which must have tried the Dendragapine nerve most sorely. With fatuous unconcern I sat down near her upon the ground and spent torturing minutes packing eggs and writing notes. This she endured, but when I sprang suddenly to my feet, her nerves gave out, and she quitted the field in disgust.

There was a teeming ant hill within five feet of the nest, but whether this bothered the bird as much as it did me, I cannot say.

Chicks are brought off after a three weeks' vigil, and the mother leads her brood about until they are fully grown. When surprised a month later, as at a dustbath, of which they are exceedingly fond, the bantlings rise to the nearest trees and secrete themselves, while the mother makes herself conspicuous in effort to distract attention. Or, if somewhat disciplined by hunting, the covey makes off through the air by twos and threes, endeavoring always to keep the same direction, that they may speedily reassemble when out of harm's way.

Grouse feed much at the lower levels, and even venture into the open in late summer and early autumn. The babies are fed along willow bottoms and in the vicinity of streams which will guarantee a supply of needed insect food. Berries come next in line, and only gradually are the youngsters inducted into the grim prosaics of fir buds and other bitter browse, to which they must become inured by wintertime. As the season advances the cocks work their way up to timberline; and they are followed in due season by the females and the half-grown broods. When the berries are exhausted, the grouse drop down to lower levels again; and at the first touch of bad weather they take to the depths of the trees, where they must subsist for some months upon an exclusive diet of fir needles.

Sooty Grouse lie well to a dog, but unless previously filled with the fear of man, they are likely to make tame targets, as they rise heavily into the nearest tree, and tamer yet as they sit and look down inquiringly at the hunter. The young of the year, in particular, are very foolish, allowing themselves to be pelted repeatedly with stones until finally struck and killed. This trick has earned for them, in common with other northern species, the name "fool hen." A northern observer claims that Sooty Grouse will hiss like a gander, especially when treed by a dog. The bird will thrust out its neck and peer down defiantly, hissing and squirming in anger over its interrupted meal.

Under repeated fire, the Wood Grouse learns not only to make away with great celerity, flying down hill if possible, with stiff-set wings, but also to hide quickly in a tree-top, squatting and freezing so perfectly that it requires a practiced eye to detect it. The Indians of the Pacific Coast used to be very skillful on the still-hunt, especially in winter, when even at the lower levels the birds appear to enter a semi-lethargic state.

The flesh of the Blue Grouse, although much darker than that of the Ruffed Grouse, affords excellent eating in the proper season. The bird attains a goodly size, three, four, or even five pounds, in the case of a

cock; and there is no reason to suppose that the supply will not last indefinitely, if campers and hunters will observe the excellent laws at present in force.

No. 316

Oregon Ruffed Grouse

A. O. U. No. 300c. **Bonasa umbellus sabini** (Douglas).

Synonyms.—"Pheasant." Bush Pheasant. "Partridge." Ruffed Grouse. Drummer. Red-Tail.

Description.—*Adult male:* Neck-tufts of lengthened feathers glossy black; above rich rusty brown (Sanford's brown to auburn), varied in endless pattern by black and ochraceous markings and ashy skirtings; tail normally color of back, but sometimes more extensively ashy or ochraceous gray, crossed by six or seven narrow bands and one broad subterminal band of black, shadowed by ochraceous (or gray); throat warm buff, nearly immaculate; remaining underparts mixed white and buff, heavily barred with tawny or warm brown, each bar bordered narrowly with dusky, the brown or dusky prevailing on chest; marks on flanks entirely dark brown or blackish. Bill brownish above, yellow below; feet brownish; the toes heavily pectinated on both edges. *Adult female:* Similar to male, but smaller, and neck-tufts much reduced in size. *Immature birds* lack the neck-tufts. Chicks are dull sulphur-yellow below, and auburn, almost immaculate, above; a strong stripe of blackish on side of head and neck from eye—curiously forecasting the distinctive black neck-ruff of adult. Length: 406.4-457.2 (16.00-18.00); av. of 3 adult males from Siskiyou County: wing 193.04 (7.60); tail 145 (5.71); bill 15 (.59); females smaller.

Recognition Marks.—Little hawk to crow size; neck-ruffs and highly variegated rusty brown coloration unmistakable; drumming notes of male.

Nesting.—*Nest:* A slight depression at base of tree or bush-clump in low woods, sparingly lined with twigs and dead leaves. *Eggs:* 8-14; creamy white or pinkish buff, unmarked or sparingly speckled with reddish brown or brownish drab. (Eggs of *B. u. sabini* average ruddier in coloration than those of other forms of the Ruffed Grouse). Av. size 41.2 x 30.8 (1.62 x 1.21). *Season:* May; one brood.

Range of *Bonasa umbellus.*—Wooded districts of the United States and Canada from Norton Sound, Alaska, and central Yukon, central Keewatin, southern Ungava, and Nova Scotia, south to northern California, Colorado, northern Arkansas, and Virginia; and in the Alleghany Mountains to Georgia.

Range of *B. u. sabini.*—Pacific Coast district from southern Alaska to northwestern California.

Distribution in California.—Resident locally on valley floors of the extreme northwestern humid district south to Humboldt Bay and east to the Siskiyou Mountains.

Authorities.—**Douglas** (*Tetrao sabini*), Trans. Linn. Soc. London, vol. xvi., 1829, p. 137 (orig. desc.; n. w. America, from Cape Mendocino to Vancouver Id.); *Townsend,* Auk, vol. iii., 1886, p. 491 (Humboldt Bay); *Anderson and Grinnell,* Proc. Acad. Nat. Sci. Phila., 1903, p. 6 (Siskiyou Mts.).

AGAIN IT IS that little touch of "Humid Transition" afforded by Del Norte and Humboldt counties (with adjacent areas in Siskiyou and Trinity) which links us up with the great Northland; and, in this case, with the north central portion of the entire continent. Ours is the western-most and most "saturated" race of the four or five stretching from Cape Cod to Cape Flattery and south to Humboldt Bay. Perhaps the most exquisite product of our somber western woods is this "Oregon" Ruffed Grouse with his plumage of warm browns and woodsy buffs, relieved by touches of white, and set off by the glossy black of neck ornaments, or ruffs. Nature has painted her favorite to match the moldering logs of red fir, cross-hatched as they are by the infinite traceries of the under-forest. When he steps forth at the sound of your footstep into some woodland path, alert yet curious, with ruffs half-raised and tail partly opened, you feel as if the very beauty of nature had found concrete expression, and that the vision would fade again if you breathed too heavily.

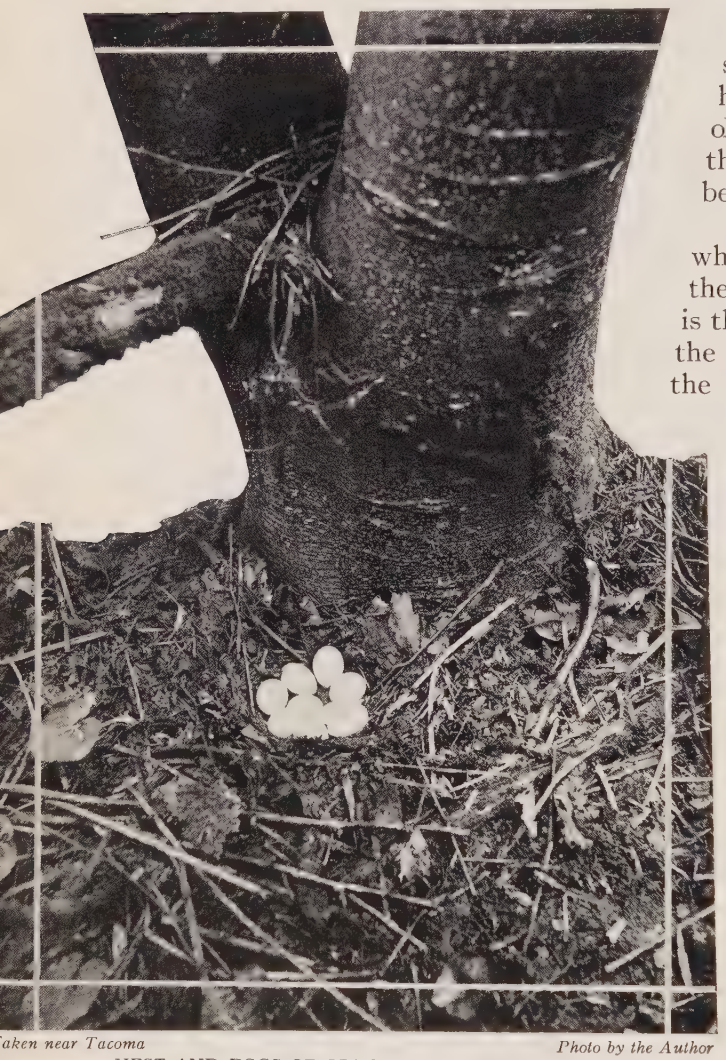
If not pressed, the bird will presently hop up on some fallen log, the better to see and be seen; or else trip away, satisfied, into some mossy covert. Or it may take suddenly to wing, with a roar which you feel to be quite needless, especially when exaggerated by a series of grunts which must be partly derisive.

From the point of view of the sportsman, this bird is not to be compared with the Ruffed Grouse of the eastern states. Its cover is too abundant, and it does not take the discipline which has educated the wily "partridge." It seldom allows the dog to come to a correct point, usually flushing into the nearest small tree, where it sits peeping and perking like an overgrown chicken, regarding now the dog and now the hunter. Pot-shooting the birds under these circumstances can hardly be called sport, but their fondness for dense thickets often makes it the only way in which they can be obtained.

In the latter part of February the mating season commences, and from that time until well into May the rolling drum-call of the cocks may be heard at any hour of the day and sometimes far into the night. Every cock has some particular fallen tree which he has chosen for his private drumming ground, and he very rarely resorts to another situation. A favorite log becomes worn in the course of a season, so that an experienced hunter may locate the trysting place in its owner's absence.

The motive of this singular performance is, of course, primarily sexual. It is the wooing call, such as every male grouse indulges in one fashion or another; but there seems to be in this, also, a more poetic element. Its exhibition is not confined to springtime, but the desire seizes the bird at intervals throughout the year, and especially in the fall. The grouse drums for the same reason that other birds sing, simply to express his joy of life.

In executing this manoeuver the bird stands to its full height and beats its wings swiftly downward toward its sides, in this manner rendering sounds which closely resemble the syllables *bump - bump - bump, bumperrrrrr*. The wing-beats commence slowly but end in a rapid whirr, which not even the most speedy lens may exactly define. The sound carries to the distance of half a mile or more, but so subtle, or profound, is its character, that the ear can scarcely distinguish as between twenty yards and fifty.



aken near Tacoma *Photo by the Author*

NEST AND EGGS OF OREGON RUFFED GROUSE
AT BASE OF ALDER TREE

It is only a lucky chance which discovers the female near the drumming log, although this is the appointed meeting place. On the occasion of her near presence the male occupies the intervals of drumming by strutting up and down with extended plumage, and tail held turkey-wise. We cannot blame the admiration of the female, and no one begrudges a mortal the right to strut a little before *one*.

It is a moot point whether Robin Goodfellow is as faithful as he ought to be. The fact seems to be, however, that behavior varies greatly with individuals. Ordinarily the bird appears to mate but once in a season. During the period of incubation, the hen is left pretty much to her own devices, but even then the cock is not unlikely to be somewhere in the vicinity. When the chicks are out, it is the mother who has the care and training of them, but instances are on record where the male has appeared upon the scene in time of danger to make gallant defense of his offspring.

At the foot of a maple in some swampy thicket, or close beside a fallen log, the female scrapes a slight depression in the earth, lining it roughly with dead leaves and a few small twigs. In this she places eight or ten eggs, buff or faintly ruddy, sparingly spotted with pale brownish or buffy red. As she leaves the nest, she does so a-wing, causing the surrounding leaves to flutter carelessly over her eggs. If the eggs are molested, she will either desert outright or else break up the polluted clutch. If, however, she only suspects that her secret may be known, she is at great pains to cover up her treasures with leaves and trash each time she quits them.

A noisy surprise is in store for the person who comes upon a mother partridge with a brood of tender chicks. With a great outcry the mother bird charges up in front of the intruder, or dashes into his face; then stands before him with flashing eyes and ruffled feathers, looking fierce enough to eat him up. Thus she holds the enemy at bay for one bewildering moment,—a precious moment, in which her tiny darlings are finding shelter. Then she collapses like a struck tent and vanishes in a trice. A diligent search may discover a chick under a fallen leaf, or between two pieces of bark, but no living man can find an entire brood in this way.

At such times, also, the female, in concealment, utters a whining sound or adds to it a vocal undertone, *dzut dzut dzut dzut*, which is not unlike the chittering of a chipmunk or a chickadee. The youngsters peep lustily, once the ban of silence has been removed, and if the bird-watcher lingers quietly, he may hear the motherly clucking which reassembles the brood.

The food of the Ruffed Grouse is, of course, chiefly vegetable. Berries of all kinds are freely eaten in season; at other times buds and "browse" form the staple diet,—huckleberry leaves, fern leaves, wild clover, and the like. This grouse loves to frequent the little bottoms where deciduous trees cover the stream-beds, and here in the fall of the year the birds may scratch among the fallen leaves, and experience some of those autumnal thrills which, in the sterner East, have given brown October and the "partridge" an imperishable identity.

No. 317

Columbian Sharp-tailed Grouse

A. O. U. No. 308a. **Pediœcetes phasianellus columbianus** (Ord).

Synonyms.—Common Sharp-tailed Grouse. Pin-tailed Grouse. "Prairie Chicken."

Description.—*Adults:* Above chiefly buffy gray or pale brownish finely varied by irregular spots and bars of brownish black and lighter brownish; wing-coverts with

rounded spots of white; wing-quills fuscous, spotted on the outer webs with whitish or tawny; the secondaries tipped with white and irregularly barred with white, the inner ones changing to pattern of back; tail graduated, the two central pairs of feathers much like back, the remainder mottled on outer webs, white or grayish white on inner; below whitish as to base, or tinged with buffy anteriorly, the throat warm buff, usually immaculate, the remaining feathers usually with U- or V-shaped markings of dark brown, heaviest and sharpest on breast, least or none on belly; axillars and wing-linings pure white; legs grayish white. Iris light brown; bill chiefly dark horn-color; toes heavily pectinated, light horn-color above, darker below. *Young birds* are browner above, with sharp white shaft-lines, and whiter below with dark brown spots on breast, changing to streaks on sides. Length of adult: 457.2-508 (18.00-20.00); wing 228.6-254 (9.00-10.00); middle pair of tail-feathers 101.6-152.4 (4.00-6.00); shortest lateral tail-feathers 38.1 (1.50); tarsus 50.8 (2.00); bill 16.5 (.65).

Recognition Marks.—Crow size; mottled grayish plumage; chiefly terrestrial habits; completely feathered tarsus; graduated tail.

Nesting.—*Nest:* A grass-lined depression under shelter of sage-bush, grass-clump, etc. *Eggs:* 10 to 15; olive-buff or dull cream-buff, unmarked, or finely dotted with brown. Av. size 43.2 x 31.5 (1.70 x 1.24). *Season:* c. May 1st; one brood.

Range of *Pediœcetes phasianellus.*—Central northern and west central North America from central Alaska and northwestern British Columbia east to central western Ungava and the Parry Sound district of Ontario south to northeastern California, central Colorado, Kansas, and Illinois.

Range of *P. p. columbianus.*—Central British Columbia and central Alberta south to northeastern California (formerly), Utah, and western Colorado.

Occurrence in California.—Formerly abundant in the Modoc region,—now extirpated by gun-fire.

Authorities.—**Newberry** (*Tetrao phasianellus*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 94 (50 mi. n. e. Ft. Reading; Pit River); *Coues*, Birds of the Northwest, 1874, p. 407 (syn., desc., nomencl., habits, etc.); *Henshaw*, Rep. Orn. Wheeler Surv., 1879, p. 317 (Camp Bidwell, Modoc Co.); *Bendire*, Life Hist. N. Am. Birds, vol. i., 1892, p. 99 (habits, nest and eggs, etc.).

A REMEMBRANCE and a sigh—that is the present day history of the "chickens" which our fathers knew—and incontinently potted. They were a hardy and a wasteful breed, the pioneers, unskilled in the economics of an older civilization. The western star of empire spoke to them only of conquest. Life was a golden to-day, unshadowed by a leaden to-morrow. Now to-morrow has come, and for many a glorious species, bird or beast, the sun has set. It *is* "to-morrow"—on the banks of the Styx.

The Columbian Sharp-tailed Grouse had all the marks of a fine game-bird. It lay well to a dog, and moved off at a pace which was a fair test of marksmanship. It was both hardy in habit and adaptable in the matter of food. Moreover, its flesh was excellent eating, juicy and tender, and in the best of condition just when the frosts were beginning to nip. An early

recognition of the danger which threatened the species, and a rigid policy of protection for a term of years would have preserved for us, at least in the northeastern counties of the State, a valuable economic asset, as well as a most interesting native species. But the day of opportunity has gone by. Both observance of law and economic wisdom are products of orderly civilization, and this wild thing succumbed while every man did that which was right (or wrong) in his own eyes. Diligent inquiry on the part of the authors of "The Game Birds of California" failed to discover any contemporary records, and in all probability this bird, although still found further north, has vanished as a bird of California.

The economy and general appearance of the Sharp-tailed Grouse is much that of the Prairie Hen (*Tympanuchus americanus*), or "chicken," of the East, after which it was promptly named by the early settlers. In the early days it was partially migratory in habit, spreading out upon the sage-brush stretches and rye-grass plains in spring and summer, but resorting to the aspen groves and timbered draws in winter. As soon, however, as cultivation assured support in winter, the birds began to maintain their place in the open wheat-fields, or visited the haystacks and the farmyards. Though chiefly terrestrial in habit, at the advent of cold weather these Grouse alight freely in trees and bushes, browsing upon the tender shoots or gleaning unfallen fruit, being especially partial to the rose-hips. In the famed "Yakima County," of Washington, which is faunistically comparable with much in our Modoc-Lassen region, the Sharp-tail was a commonplace thirty or forty years ago. It was no unusual thing in my boyhood to see a flock of these Grouse walking and fluttering about the barn or some of the out-buildings, nor even to be aroused at early morning by the patter and scratch of pectinated feet upon the house-top. Of course this was the prompt signal for resurrecting the old musket,—so gracious is human hospitality!

Sharp-tailed Grouse have several cackling and calling notes, none more characteristic than the rattling, grunting cry with which they take to wing. When getting under way the body is rocked violently, as though by alternating wing-strokes. A series of such flaps is followed, if the way is clear, by a long sail on stiffened wings; and so powerful is the bird in flight that it will not infrequently distance a hawk or an unsophisticated owl. I have seen a Marsh Hawk dash repeatedly into a passing flock of Grouse, but never saw him catch one.

These Grouse are doubtfully monogamous, but their nesting is prepared for by an elaborate social function, which is thus described by Mr. Ernest E. Thompson:[1] "After the disappearance of snow and the coming of warmer weather, the chickens meet every morning at gray dawn in

[1]Speaking of a closely allied form, *P. p. campestris*—The Birds of Manitoba, Proc. U. S. Nat'l Museum, Vol. XIII. (1890), p. 519.

companies of from six to twenty on some selected hillock or knoll and indulge in what is called 'the dance.' This performance I have often watched. At first, the birds may be seen standing about in ordinary attitudes, when suddenly one of them lowers its head, spreads out its wings nearly horizontally and its tail perpendicularly, distends its air sacs and erects its feathers, then rushes across the 'floor,' taking the shortest of steps, but stamping its feet so hard and rapidly that the sound is like that of a kettle drum; at the same time it utters a sort of bubbling crow, which seems to come from the air sacs, beats the air with its wings, and vibrates its tail so that it produces a low, rustling noise, and thus contrives at once to make as extraordinary a spectacle of itself and as much noise as possible.

"As soon as one commences all join in, rattling, stamping, drumming, crowing, and dancing together furiously; louder and louder the noise, faster and faster the dance becomes, until at last, as they madly whirl about, the birds are leaping over each other in their excitement. After a brief spell the energy of the dancers begins to abate, and shortly afterward they cease or stand and move about very quietly, until they are again started by one of their number 'leading off.'

"The space occupied by the dancers is from 50 to 100 feet across, and as it is returned to year after year, the grass is usually worn off and the ground trampled down hard and smooth. The whole performance reminds one so strongly of a Cree dance as to suggest the possibility of its being the prototype of the Indian exercises."

No. 318

Sage Grouse

A. O. U. No. 309. **Centrocercus urophasianus** (Bonaparte).

Synonyms.—Sage Cock. Sage Hen. Cock-of-the-Plains.

Description.—*Adult male:* Above mingled buffy and grayish, varied irregularly with black; many of the wing-feathers with central white streaks, the tertials bordered terminally with white; wing-quills grayish brown, sometimes mottled on outer webs with paler, chin and throat broadly mingled black and white, defined laterally by crescentic area of white; lower throat black, the feathers bordered more or less with grayish white; chest gray; belly black surrounded by white; lower tail-coverts black, broadly tipped with white; lining of wings white; tail-feathers, narrowly tapering, dusky as to ground, but finely mottled above and below. Bill black; feet blackish. "To describe the peculiar neck-feathering of the old cock more particularly: On each side is a patch of feathers, meeting in front, with extremely stiff bases, prolonged into hair-like filaments about 3.00 in length; with the wearing away of these feathers in the peculiar actions of the bird in pairing-time, their hard horny bases are left, forming 'fish-scales.' In front of these peculiar feathers is the naked tympanum, capable of

enormous inflation under amatory excitement. Above them is a tuft of down-feathers, covered with a set of long soft filamentous plumes corresponding to the ruff of Bonasa. Many breast-feathers resemble the scaly ones of the neck, and are commonly found worn to a bristly 'thread-bare' state. Scaly bases of these feathers soiled white; thready ends blackish; fluffy feathers snowy-white, like wool, the longer overlying filamentous plumes glossy black" (Coues). *Adult female:* Similar to male, but much smaller and without black of chin and throat; feathers of neck not strikingly peculiar. Length of cock 609.6-762 (24.00-30.00); wing 304.8 (12.00); tail 279.4-355.6 (11.00-14.00); weight 4 to 8 pounds. Adult hen: length 533.4-584.2 (21.00-23.00); wing 254-279.4 (10.00-11.00); tail 177.8-228.6 (7.00-9.00); weight 3 to 5 pounds.

Recognition Marks.—Brant size; largest of American grouse; sage-haunting habits.

Nesting.— *Nest:* A scantily-lined depression in ground under sage-bush. *Eggs:* 6 to 15, usually 8 or 9; olive-buff to deep olive-buff, dotted and spotted with dark brown. The marking is of different degrees of intensity, is well distributed, and varies in size from a pin-head to a pea, tending to circular forms. Av. size 54.6 x 38.1 (2.15 x 1.50). *Season:* April–May; one brood.

General Range.—Sage-brush plains of western North America from south central British Columbia, southern Saskatchewan, and northwestern North Dakota, south to central eastern California, northwestern New Mexico, and northwestern Nebraska. Resident throughout its range.

Distribution in California.—Resident in the northeastern plateau district east of the Sierras from eastern Siskiyou County east to eastern Modoc County and south to northern Inyo County. Formerly abundant; now greatly reduced in numbers and locally wanting.

Authorities.—Douglas (*Tetrao urophasianus*), Trans. Linn. Soc. London, vol. xvi., 1829, p. 133 (interior of north California); *Newberry*, Rep. Pac. R. R. Surv., vol. vi., 1857, p. 95 (habits); *Coues*, Birds of the Northwest, 1874, p. 400 (syn., desc., habits, etc.); *Judd*, U. S. Dept. Agric., Biol. Surv. Bull., no. 24, 1905, p. 23 (food).

AS BAMboo to the Oriental, or as the cocoanut palm to the South Sea Islander, so is the sage-bush to this Cock of the Plains. It not only provides him shelter of a sort, but food and probably drink as well. At least, from

Taken in Oregon HIS GALLANTRY, THE SAGE COCK *Photo by Finley*

the fact that the Sage Cock is found at such distances from water, we are forced to conclude that the dew-covered browse of the Artemisia must often serve the bird in lieu of water. As to food, this Grouse has so long depended upon the leaves and tender shoots of the sage-brush and greasewood for subsistence, that it is incapable of digesting grain when it is offered. The bird's gizzard, unlike that of other grouse, is not a strong, muscular grinding-organ, but a membranous sac capable of great distension, but unequal to the task of reducing seeds, grains, or even hard-shelled beetles. The bird's spring diet is varied by many kinds of tender herbage, and in summer it consumes quantities of crickets, grasshoppers and other insects, but sage is eaten at all seasons and forms its exclusive ration in winter.

In spite of this monotonous and bitter fare the flesh of the adult Sage Grouse is far from unpalatable, especially if speedily prepared; while birds of the year in the fall are as wholesome as those of any other species. In fact, much that has been written about "fishy" ducks and "sagey" grouse has been derived from specimens left about undrawn until the characteristic flavors of the intestinal contents have permeated the flesh,—obviously, an unfair test in case of a pronounced diet either of clams or wormwood.

Taken in Oregon
Photo by William L. Finley

ALL FOR THE LADIES!
THESE THREE POSES ARE FROM CONTIGUOUS MEMBERS OF A MOTION PICTURE FILM. NOTE RAPIDITY OF CHANGE

Sage Grouse move about in coveys, family groups, in which the mother remains a central figure, until late autumn. At that season several

coveys may unite to form a "pack," and the male birds are allowed to rejoin the company. Stories are told of bands numbering up to a thousand, but small flocks are the rule. These Grouse, like all others in America, with the partial exception of the Pinnated, are non-migratory; but they are mildly nomadic in their habits, moving about in the flocking season from one portion of their local range to another.

Taken in Oregon *Photo by Finley and Bohlman*

PORTRAIT OF SAGE_GROUSE

Although far larger—males weigh five or six pounds, and eight-pound birds are of record—the Sage Grouse resembles the Sharp-tail in many ways. Like the latter it will crouch low upon the ground, or, especially if the passerby be on horseback or in a wagon, will "freeze" beside a sage-bush in hopes of escaping detection. When put to flight, it has the same harsh rattle or cackle, increased in proportion to its size. It rises heavily with violent exertion of alternating wing-strokes, and after each repetition of such efforts, rests, in long stiff sails. The birds lie well to a dog, or not, according to circumstances, and a flock is seldom found lying as close together as is the case with Sharp-tailed Grouse.

In the courting antics of this valiant son of the desert, Nature has indulged a fresh fancy. Indeed, it is to be suspected that the Dame takes a special delight in making some of the most staid and prosaic of her male progeny appear in a ridiculous light, when under the influence of the tender passion. This grizzled veteran of the wormwood does not express his sentiment with either dignity or grace. No; he first inflates the air-sacs which line his neck until they assume alarming proportions, meeting in front and frequently engulfing his head; the tail with its spiny feathers is spread to the utmost and pointed skyward; then the gallant

pitches forward and casts off for a belly-buster slide over the ground, not without much assistance of propulsive feet in approved "kid" fashion. As a result of this ridiculous dry-land swim, the feathers of the breast are worn off at the tips till only the quills protrude. These ragged quill-ends, in being forced over the earth, produce a mild roar which passes for an aria by Caruso with the gray lady in the sage-box. La! but it is absurd! Do you suppose — now *do* you suppose we ever make such fools of ourselves?

Taken in Oregon *Photo by William L. Finley*

FULL DRESS

THE SAGE GROUSE IS WELL NAMED *Centrocercus*, "SPIKE-TAIL"

In nesting, the female hides from the cock, as is the case with most of the grouse. A slight depression in the ground, barely or not at all lined with twigs and sage-leaves, serves for a cradle, with a sage-bush for a canopy. The eggs are heavily colored, greenish gray or greenish drab as to ground, with sharp dots and rounded spots of reddish brown or chocolate. Eight to fifteen is the number laid, but the smaller denomination represents the average size of fall flocks after the coyotes have taken toll.

Sage is a thing accursed in the eyes of all thrifty farmer folk, and he

whose ambition it is to cause two blades of grass to grow where none grew before, must needs abolish the wormwood. With it goes the Sage Grouse, after the turkey, the largest and most irreclaimable of the American Tetraonidæ.

There are still Sage Grouse in California. How long they will remain does not depend so much upon the observance of our fairly decent game laws, as upon the esthetic attitude of that portion of our population which is in contact with the wilderness. If it is deemed a *sine qua non* of human happiness to arrange an annual slaughter of these lumbering fowls, they will surely disappear, even though the "bag limit" be reduced to one per season. But if our people can be brought to see that the glory of the wilderness—that little portion of it still remaining to us—lies in the presence and abundance and *happiness* of its wild things—not in their destruction—then generations to come may make unceasing pilgrimages to their desert shrines, and they will find these quaint, ungainly, and most diverting fowls in the full enjoyment of their ancient tenure. It's up to us.

Taken in Oregon *Photo by William L. Finley*

A DESERT ROSE

REAR VIEW OF SAGE COCK AT MAXIMUM STAGE OF COURTING DISPLAY

Taken in Idaho *Photo by H. J. Rust*

NEST AND EGGS OF SAGE GROUSE: A DESERTED NEST

No. 319

Prairie Falcon

A. O. U. No. 355. **Falco mexicanus** Schlegel.

Synonyms.—Mexican Falcon. American Lanner Falcon.

Description.—*Adults:* Upperparts ruddy grayish brown (nearly bister), the feathers usually more or less tinged with rusty and chiefly bordered with pale clay-color, or bluish gray—the general effect in high plumage being of a ruddy brown overspread with ruddy glaucous reticulations; crown and upper back more blended, crown sharply and heavily streaked with dusky shaft-lines, back and wings more lightly and sparingly dusky-shaft-streaked; primaries darker brown, nearly uniform on exposed portions of folded wing, but sharply and deeply indented or spotted on inner webs with white and ochraceous; tail much paler brown on exposed portion, but similarly ochraceous-whitish dented on inner webs; face narrowly (region about base of bill) white, flanked by narrow ruddy black mustachios which proceed sharply downward from before eye; cheeks white; auriculars like back; an obscure whitish line across occiput continuous with equally obscure superciliaries, and another disconnected line across cervix; axillars plain brown, the proximal portion of wing-lining brown centrally with white edging;

remaining wing-lining white with a few touches of brown; underparts pale buffy white, immaculate on throat, elsewhere marked with brownish gray of same shade as back, narrowly and distinctly on breast, broadly on sides and flanks, where falling into bars, sparsely on crissum, coalescing in maxillary region into broad mustache. Bill dark bluish, changing to yellow at base and on much of lower mandible; cere and feet yellow; iris brown. *Young birds* are darker, above, with feathers distinctly margined with light rusty, and their underparts are tinged with pale buffy and more broadly streaked —the younger the bird the richer the coloration. *Downy young:* Pure white. Length of adult male: 406.4-457.2 (16.00-18.00); wing 292.1-317.5 (11.50-12.50); tail 165.1-190.5 (6.50-7.50); culmen 19.1 (.75); tarsus 50.8 (2.00). Adult female, length: 469.9-508 (18.50-20.00); wing 336.6-362 (13.25-14.25); tail 203.2-228.6 (8.00-9.00); culmen 22.1 (.87); tarsus 57.2 (2.25).

Recognition Marks.—Crow size; powerful, easy flight; light brownish gray coloration, with size, distinguishes it from any related local species, especially the darker Peregrine (in comparing these two species note especially the white cheeks of *mexicanus*); varied screaming cries.

Nesting.— *Nest:* None; eggs laid on floor of ledge or in cranny or tiny cave of cliff, and this sometimes marked by old nest of Raven. *Eggs:* 4 or 5; rounded ovate; basally, and theoretically, white, blotched with russet and vinaceous gray. This is a rare type. More commonly entire egg more or less suffused with a pale shade of the pigment, against which deeper shades are more or less clearly outlined as specks, spots, blotches, and clouds, or else overspread as superwashes. Hence, egg yellowish brown, cinnamon-buff, cinnamon, sayal brown, mikado brown, pinkish white, light grayish vinaceous or hazel, marked or clouded with darker shades, snuff-brown, hazel, and liver-brown. Av. of 73 specimens from San Luis Obispo County in the Museum of Comparative Oology 50.4 x 39.4 (1.99 x 1.55); index 78. *Season:* April; one brood.

General Range.—Southern portion of western Canadian Provinces east to eastern border of Great Plains, south through Lower California and Mexico, breeding chiefly in Sonoran and Lower Transition zones.

Distribution in California.—Resident in semi-arid Sonoran zones both east and west of the Sierra Nevada. Not found in the humid coastal strip, and only casually above Transition in the Sierras. Especially abundant along the inner coast ranges fronting the great interior valley.

Authorities.—**Cassin** (*Falco polyagrus*), Proc. Acad. Nat. Sci. Phila., vol. vi., 1853, p. 450 ("California"); *Fisher*, Hawks and Owls of the U. S., 1893, p. 104 (food); *Cohen*, Condor, vol. v., 1903, p. 117 (Mt. Diablo, nesting); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 48 (occurrence in s. Calif.); *Dawson*, Condor, vol. xv., 1913, p. 55, figs. (nesting habits in San Luis Obispo Co.).

THE 'problem of evil' has always bothered the theologian, and he is bound to wrestle with it, because inconsistency is intolerable in religious thinking.[1] But the bird-lover cannot be consistent. Within his little province he cannot "love good and hate evil," for to do so were to lose that *joy in variety* which is his endless delight. Nature herself is inconsistent—fearfully so. Indeed, it is she who has set theology's problem. And if there be a "higher unity" or "religious synthesis" (and I

[1]The basis of this article appeared in ' The Condor," Vol. XV., March-April 1913. Reproduced by courtesy

believe there is) we as nature students have naught to do with it. If we are to find satisfaction in things as they are, if we are to enjoy nature, external nature, we must surrender ourselves to admiration of beak and talon no less than of wing and song. We may champion the cause of our specialty—Birds—against the world, if you like, and death to cat, weasel, and serpent; but you cannot adjudicate as between magpie and chick, hawk and sparrow, raptor and raptee. Or if you do, you will only make yourself miserable,—and wherefore?

All of which is artful preface to a declaration of love for that arch scamp and winged terror, the Prairie Falcon (*Falco mexicanus*). Ruthless he is, and cruel as death; but ah, isn't he superb! To recall his image is to obtain release from imprisoning walls, glad exit from formal gardens and the chirping of sparrows. To recall his scream is to set foot on the instant upon the bastion of some fortress of the wilderness. Away with your orange-bowered bungalows! Give me a sun-burned battlement in the hills of San Luis Obispo County. A plague on your dickey birds!

Taken in San Luis Obispo County *Photo by the Author*

CATTLE COUNTRY

Let me dare the displeasure of the noble falcon as he falls like a bolt from the avenging blue and shrieks out his awful rage. Curse for curse and blow for blow, you jolly old pirate! Hide your treasures in the remotest cranny of the uttermost wilderness, if you will, and I shall find

them; and if I find them, they are mine; and if I reach them, you may wreak your vengeance on whom you will. I will not even reproach you for the rape of pullets nor the carnage of quails. Go to it, old sport! Fill the air with shrieks and call heaven to witness what a rogue you are! Aye, but you're a gay fowl, and I'm o'er fond of you!

Redrawn by Allan Brooks from photo by the Author
READY!

All the traditions of chivalry, save gentleness, and all the associations of romance gather about this bird. In speed, in grace, in prowess, and in skill, he is the peer of any; and in the choice of nesting sites he is excelled by none. Picture, if you please, a granite cleft in the foothills. The road at the bottom winds deviously over intersecting talus beds, "rock slides," while the sun-kissed battlements of riven rock tower on either hand to the height of a thousand feet; and they clear their own debris in sheer walls of at least half that height. About the brink of the precipice a dozen Falcons are at play. It is courting

Taken in San Luis Obispo County *Photo by the Author*

A HURRIED DEPARTURE

time and the birds are showing off. The females are the larger birds, but it is their turn to sit in the boxes while the aspirants perform. The doughty males are not really contending—only renewing their vows as they come hurtling out of the heavens, screaming like all possessed and cutting parabolas whose acuteness is a marvel of the unexpected. The female screaks in wild approval, or takes a turn herself because she cannot contain her fierce emotions. The rock walls resound with boisterous music, and the observer feels as though he were witnessing the play of elemental forces—riotous, exultant, unrestrained, the very passion of freedom and conquest.

The Falcon is king of birds and he knows it. Ferocity gleams in his eye and menace quivers in his talons. Mastery is his element; his very wings flash confidence; and caution is to him a thing unknown. The much-vaunted Eagle is a craven beside him, and nothing affords the smaller bird greater delight than to hector his lethargic kinsman.

The Prairie Falcon is doubtless something of a tease at best. One observed at a northern lake made life miserable for an inoffensive Red-tail who chanced to occupy the same ledge; and he also took elaborate pains to chase the Great Blue Herons out of bounds. The Falcon would make repeated dashes at the passing hulk, but he could hardly have intended bodily injury to the herons, for he permitted them to evade each time by

Taken in Kern County *Photo by the Author*
NEST AND EGGS OF PRAIRIE FALCON IN SANDSTONE CRANNY

ducking, and he probably enjoyed sufficiently the bellow of mingled fear and rage which he was able with each threat to elicit from the larger birds.

The flight of the Prairie Falcon is always easy and graceful, being oftenest accomplished by a succession of short wing-beats alternating with a sail. The bird mounts rapidly, and if intent on distant hunting grounds, is, because of its light coloration, soon lost to eye. It is hardly possible to exaggerate the swiftness of the Falcon's flight through comparison with that of any other bird. I should say that the White-throated Swift alone excels it.

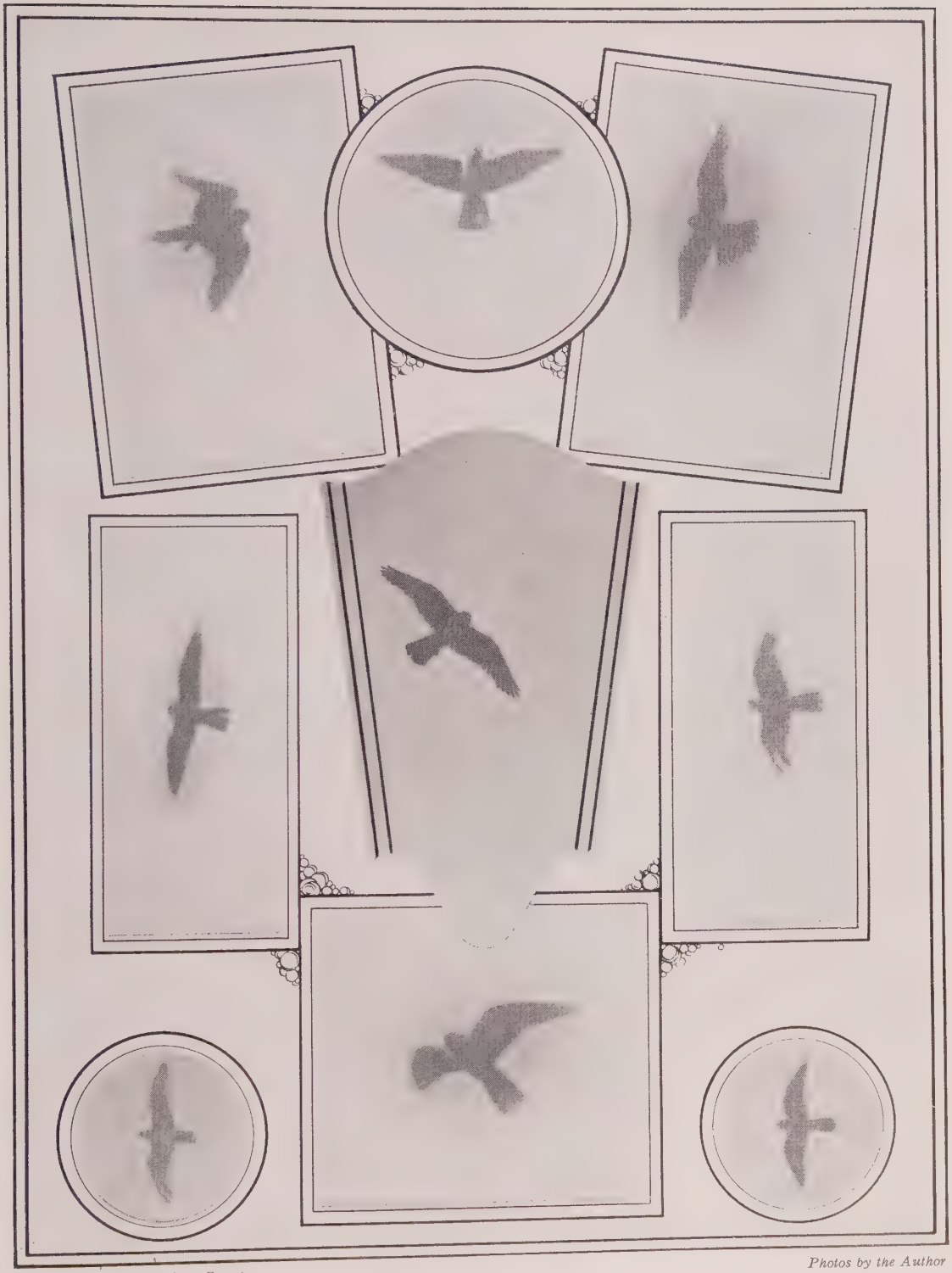
While jogging along through a little "coulee" in northern Washington my horse almost stepped on a Meadowlark which rose and immediately

settled again within ten feet. Thinking of a possible nest, I dismounted and turned my horse's head, disturbing as I did so another lark from my very feet, and putting the first bird to flight for some two or three rods further. At that moment a Falcon flashed past my head with a quick *ldhuff*, and before I could recover from amazement, the Hawk was speeding out of sight with the lark in its talons. So instant was the Falcon's swoop that I, although looking straight at the scene, could not have told within ten feet where the Hawk annexed the lark.

The bird makes little fuss over the capture of small game. It simply materializes out of the empty blue and picks up a gopher or a blackbird as quietly as you would pluck a flower. The approach has doubtless been nicely calculated. The thunderbolt, launched from the height of half a mile, has been checked every few hundred feet by a slight opening of the wings, that the Falcon might gauge the caliber and intent of the victim; and the final plunge has, therefore, the speed and accuracy of fate. In case of larger game the quarry is knocked headlong by a crashing blow, after which the assailant turns to try conclusions as to weight. But the Falcon prefers always to snatch, and when small game is abundant, the bird is less likely to disturb rabbits or poultry.

The first requirement of the Prairie Falcon is open country; and the second a cranny where she may lay her young. These conditions are ideally met in a low range of hills which run north and south through eastern San Luis Obispo County, and form the backbone of that "cattle country" made famous in story and song by deeds of vaquero and misdeeds of brigand. To the westward lie other rolling hills carpeted with bunch-grass and dotted with oaks. To the eastward stretches the arid interior plain. This cardinal ridge, by reason of the torrential character of the occasional rains of that country, is deeply scored by lateral canyons, and "breaks" in a thousand walls, walls which vary in appearance from the sloping adobe of the north to the rugged escarpments of sandstone, conglomerate, and Pecten beds, which front the upper San Juan. Here are the castles, and there are the banqueting tables. For the presence of cattle means insects, and insects imply insect-eating birds, and *Insectivores* mean *Raptores*. If we use birds-of-prey in the economic instead of the structural sense, and so include Magpie, Raven, and Shrike, then this cattle country is ravaged by no less than 23 species of feathered bandits (and ghouls); and of these we actually saw nineteen in the course of a three weeks' reconnaissance in April, 1912.

Of *Falcones* proper, after the ubiquitous Kestrel (*Cerchneis s. sparverius*), the Prairie Falcon is most numerous in fact, and least evident to casual notice. It is his proper domain, but he rules it invisibly from on high. His business with earth is quickly despatched, and he is off again, while



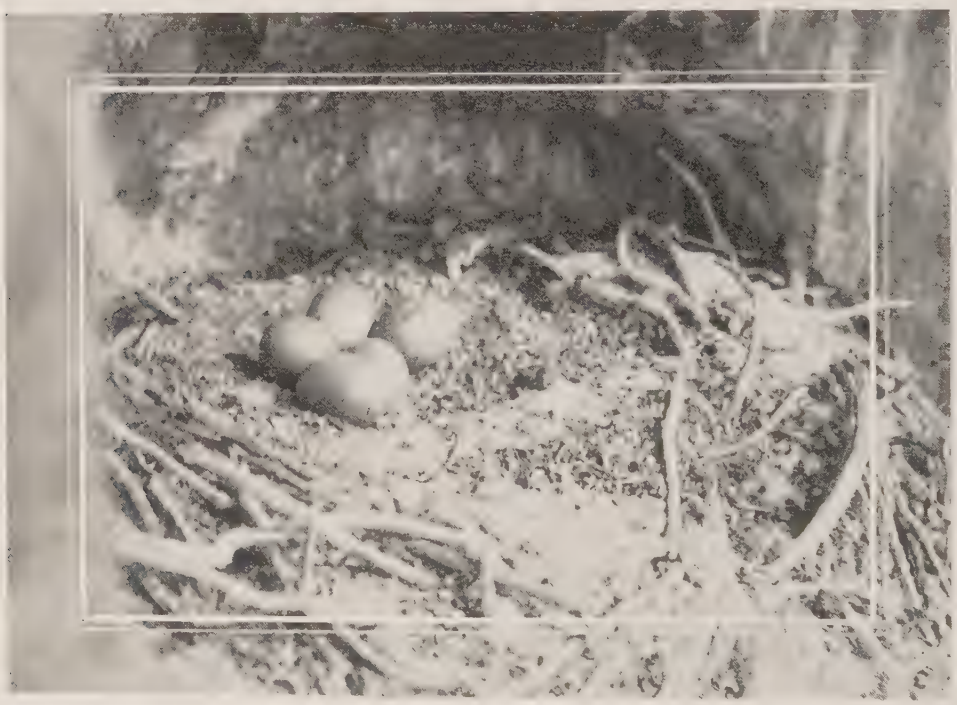
Taken in San Luis Obispo County

FLIGHT STUDIES OF THE PRAIRIE FALCON

Photos by the Author

the slow eye, especially of the breeder of hens, settles upon the soaring Buteo as the presumptive culprit. While his visits to the poultry yard are by no means rare, and his offenses, judged from this narrow human angle, are serious, we shall not stop to plead the thousands of destructive squirrels which this bird accounts for, but only hasten on to view him, or rather her, at home.

The first scene is a wild adobe amphitheater, one of half a dozen such in sight at any given station. A few shrubs manage to cling to the upper reaches of the great earthen funnel; but as the walls descend, the pitch increases, until the vortex, 400 feet below, is fronted by walls, perpendicular, or even undercut. Here at a point midway of the basal



Taken in San Bernardino County *Photo by Wright M. Pierce*

EGGS OF PRAIRIE FALCON IN OLD RAVEN NEST

wall, Kelly's practiced eye discerned a Prairie Falcon squatting upon a shady shelf. I stood on the very uppermost brim of the funnel whose edges fell away sharply on either hand, and from my station it did not seem that a bird could find footing, let alone lodgment, on the wall against

which this Falcon had set herself. Yet a determined facing of the problem of approach brought a sure solution. We set an iron peg down some forty feet over the brim, then made fast and cast off the 60-foot rope with which we were provided, and found that it thus exceeded the nest by fifteen feet. To have gone down from above would have meant some risk, as well as an accompaniment of blinding dust, so "Kelly" made a detour and attacked from below. By dint of carving steps with a hammer he succeeded at last in clutching the dangling rope-end, and so reached the coveted shelf. The Falcon, meanwhile, made the great amphitheater resound with malediction, and charged about in a fashion to make the beholder dizzy as he watched her passage across the fluted background. Her anger made our visit memorable, but it failed to arouse her mate, who was doubtless off hunting in the basin country.

Taken in Kern County *Photo by the Author*

A PALATIAL RESIDENCE

A PRAIRIE FALCON MAY BE SEEN STANDING ON AN OLD RAVEN NEST

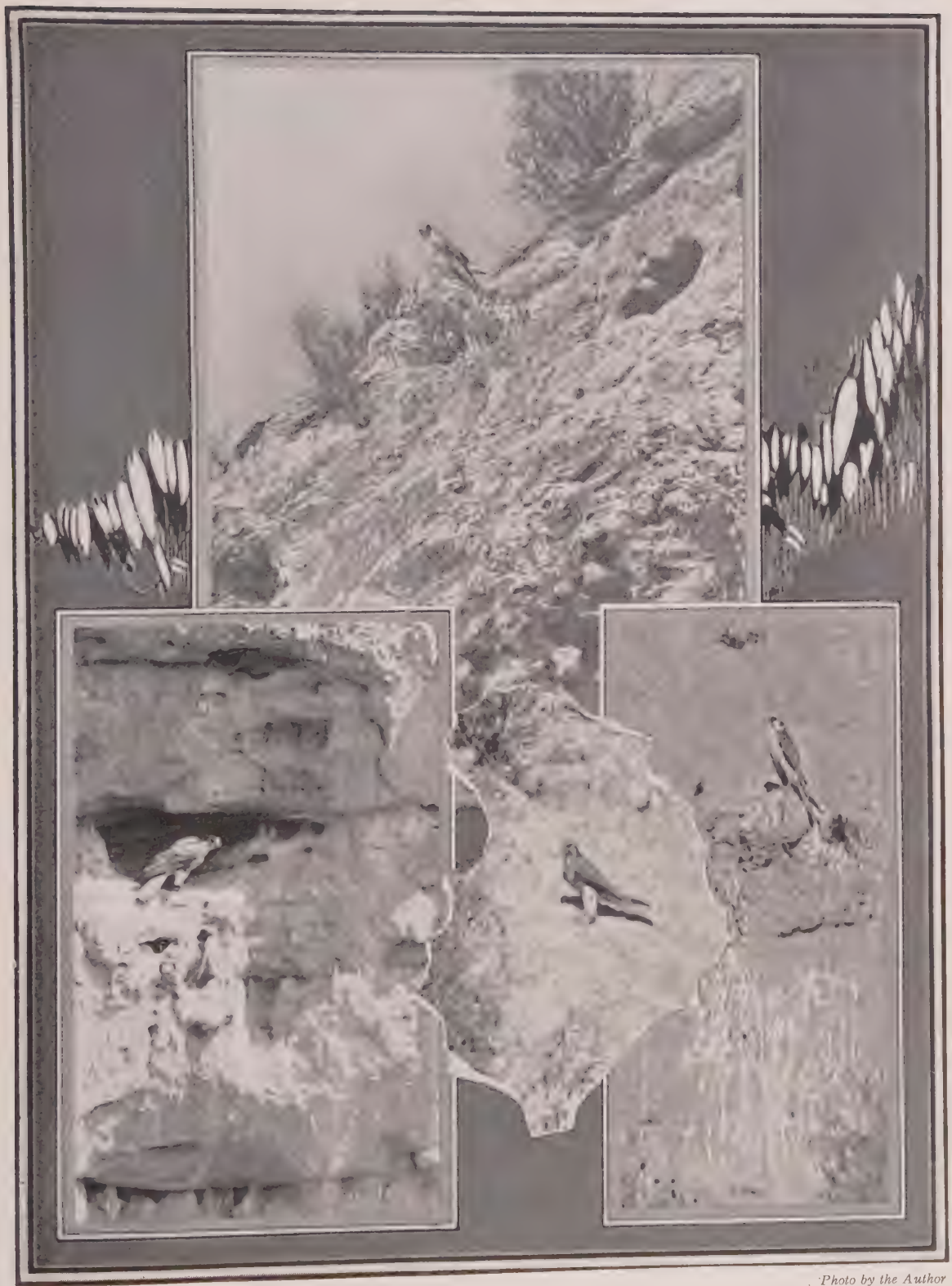
Though slow to take alarm, the Falcon once roused from the nest becomes very wary. It was doubly fortunate, therefore, that one of the birds photographed for display on page 1619 could be approached under cover, and suddenly confronted from a convenient spur just opposite. To reach this nest our intrepid guide, Dean Brown, went down hand over hand the full length of a 140-foot rope. A bird who knows she is under surveillance will never resume a position on the eggs; but she will intersperse her nervous and often distant excursions by prolonged rests on some favorite perch or commanding knob. And this she is the more ready to do if the observer himself remains quiet. A resumption of

hostilities sends her off on the instant to screak and soar or tower and stoop.

Of course it will be remembered that the female Prairie Falcon is the larger and "better" bird, as is the case with most Raptors. She is the more aggressive and feels the greater interest in the welfare of her brood, probably because the duties of incubation fall chiefly to her. It was several years before I even so much as saw a male Prairie incubating, but several such examples have more recently come to hand, so that I presume it is largely a matter of individuality, after all. The unpracticed eye can soon distinguish the larger proportions of the female, but it takes a practiced ear, or close individual association, to catch the difference in timbre or weight between the voices of the two sexes. Here, again, individuality counts, but the voices of the males average lighter.

The assaults of an angry Falcon are really dangerous. Even when the earliest efforts are discouraged by a show of sticks or stones, it is decidedly disconcerting to feel the rush of air from a passing falcon-wing upon your hatless pate, or to mark the instant change in pitch from the shrill uproar of impending doom to the guttural notes of baffled retreat. The Falcon has a nasty temper at best, and if she dare not vent her spite on you, she will fall upon the first wight who crosses her path. Woe betide the luckless Barn Owl who flaps forth from his polluted den hard by to learn the cause of the disturbance. I have seen such bowled into the sage in a trice, and Kelly declares that he has several times seen them struck dead. At such times also the Raven is put on trial for his life. In spite of their close association, there is evidently an ancient grudge between these birds. Whether or no the ebony saint be at fault, I cannot tell, but certain it is that if a Raven blunders near in the hour of the Falcon's high displeasure, he is fearfully beset. The Raven is an adept at wing-play himself, and the Falcon's thunderbolt is met with a deft evasion which reminds one of the best sword-play. But the Raven takes no pleasure in it. His eyes start with terror, and while he has no time for utterance himself, the distressed cries of his mate proclaim the danger he is in.

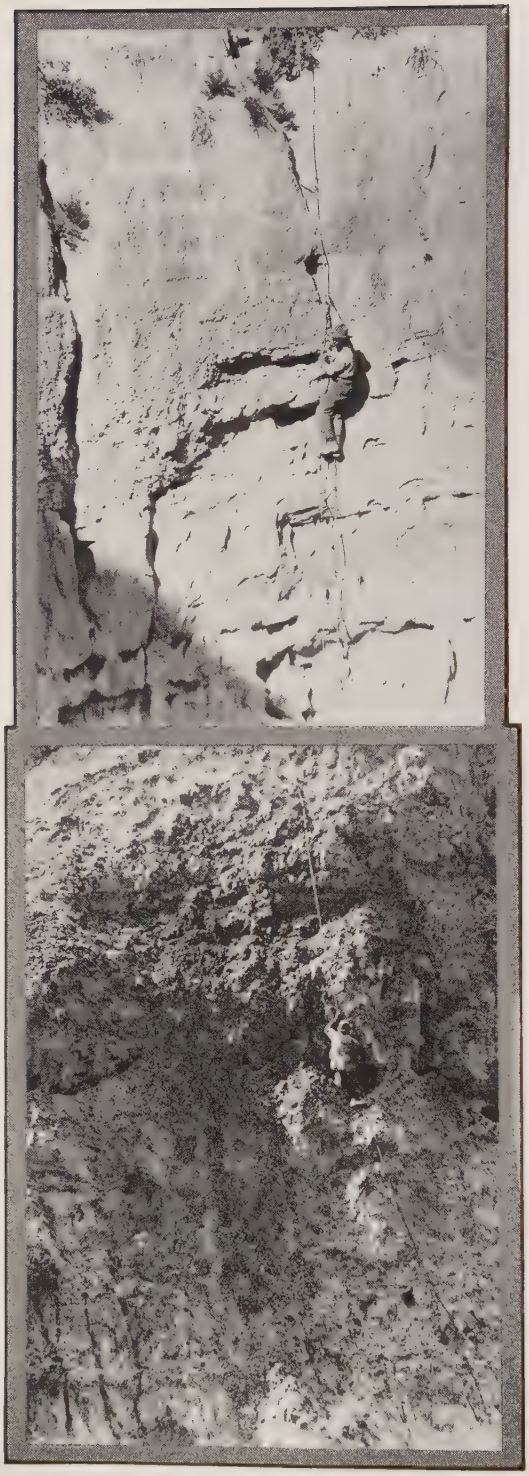
This close association of Falcon and Raven at nesting time is the strangest element in the lives of both of them. To be sure, their requirements of nesting sites are similar; but it is more than that which induces the birds to nest within a hundred yards of each other in the same canyon, when neighboring or distant canyons offering as excellent sites are empty. So constant indeed is this association that when one finds the Raven's nest, he says, "Well, now, where is the Falcon's?" Of the entire number of Ravens' nests which came under my personal notice in one year, seven were thus associated with nests of the Falcon in the same canyon, and the



Taken in San Luis Obispo County

Photo by the Author

FALCON POSES



Taken in San Luis Obispo County *Photo by the Author*

REAL SPORT

THE LOWER FIGURE IS THAT OF THE VETERAN NESTER, FRED TRUESDALE

remaining three were within a quarter of a mile of Falcons' in neighboring canyons separated by a single ridge. And it is impossible to tell from the stage of incubation reached which bird is the follower. In two instances nests containing young Ravens were associated with Falcons whose eggs had not yet hatched; but in another notably close instance, the Raven laid her first egg on the day the Falcon's eggs were pipped. The remaining instances were neutral; i. e., nests of both species contained eggs. The only guess we dare hazard is that both birds reap advantages of warning in case of hostile approach.

Concurrent with this association is the annual, or at least occasional, shifting of sites on the part of both species. This shifting is of course quickened by persecution. If unsuccessful in raising a brood one year the bird will try another situation, but always, except in extreme instances, in the same canyon or general locality. In this way the Falcon appropriates the site once occupied by Ravens (and so gets credited with a "stick" nest, though I am satisfied that the Falcon never lifts a twig); and the Ravens, in turn, without opposition, are allowed to rear their pile in a niche just previously occupied by the Falcons. The ruses adopted by birds hard pressed are sometimes

Taken in San Luis Obispo County *Photo by the Author*

A NESTING HAUNT IN THE SHANDON HILLS

humorously pathetic. A Falcon which one year occupied the front of a noble escarpment in a wild valley (and forfeited four clouded beauties thereby) was found the next year, after a lengthy search, in a tiny niche once occupied by a Road-runner, on the back, or hill-facing side, of a minor sandstone tooth, and not over twenty feet from the ground. The retreat had been betrayed by an incautious line of white excrement, and the occupant, when summoned by a shout from the triumphant Kelly, looked the very picture of disgust and chagrin. She was mad all through, too disgusted for utterance, and she sat glooming upon the edge of the nest until we drew very near. When she flew she gave vent to the usual number of futile expletives, whereupon the male joined her and gave us a double blessing.

The two handsomest sets of eggs in the extensive M. C. O. series were obtained on successive days in the Shandon country, and the finding of both resulted from a combination of professional suspiciousness, *durchheit*, and happy accident, which taken together constitute "collectors' luck." A page from the note-book gives the details as follows:

"It was the 'white' Falcons who more nearly outwitted us this year,

for we had invaded their sanctuary for the second time and were on the retreat, thoroughly baffled, when a vagrant impulse seized me to fire a pistol back and some two hundred yards away, at a last year's raven's nest set high against a rock wall. The celerity with which a male Prairie Falcon abandoned five perfectly good eggs of the rare 'white' type was a balm to wounded spirits.

"In another canyon a male Prairie Falcon keel-hauled a passing eagle, and I marked his approximate range of interest upon his return in lordly mood. There were many possibilities, but I tried first a likely-looking old raven's nest a hundred yards away. The effect was electrical. Out shot a female Prairie Falcon as though touched by the bullet; and when she had caught her breath, she filled the air with fierce aspersions, perhaps pardonable under the circumstances.

"The ascent was tedious and the sun torrid; but the descent over a conglomerate escarpment some ninety feet in height was rewarded by a set, 1/4, of the darkest eggs of this species which I have ever seen, so dark, indeed, that I first exclaimed 'Duck Hawk!' incredulously. The amiable birds did not omit to offer comments anent my skill as a rope artist; and the female made some beautiful swoops at my head—always a solace under such circumstances. Ah, me! What a rascal is the oölogist who enjoys such objurgations! But I'll own to it. And as the indignant lady stood upright in her empty cell, I turned and blew her a kiss and promised to come back another year."

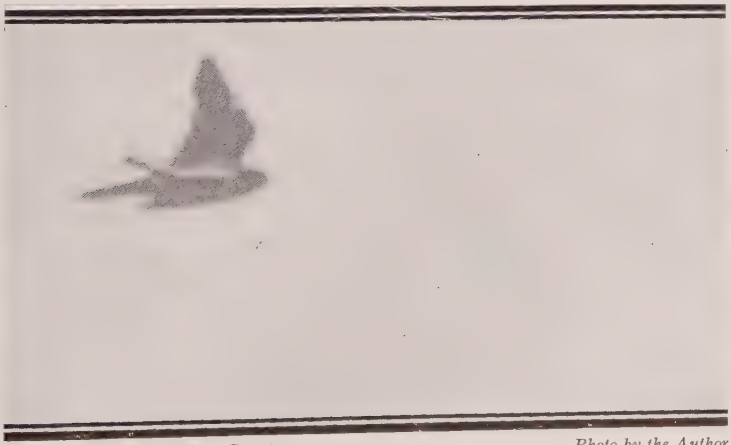
The exact choice of nesting sites varies interminably from "potholes" and crannies to more pretentious caves, or even open ledges. The chief requirement is inaccessibility, especially as regards four-footed prowlers. The birds scarcely fear the intrusion of feathered marauders, I guess, though I do recall having once seen a Barn Owl which lighted, possibly by accident, upon a ledge which a Prairie Falcon had just quitted, and which contained four fresh eggs. The owl stood her ground, too, in spite of a furious onslaught, and the advantages seemed to lie with the night bird so long as she had a wall to back her up. Anyhow, the falcon withdrew a few rods and the owl slipped away, hugging the cliff so tightly that the falcon did not dare to strike. A south exposure is oftenest favored and there seems to be no particular effort on the part of the sitting bird to avoid the glare of the sun. Unseasonable rains, however, do sometimes cause her discomfort, and, more rarely, loss.

The first two weeks in April are the golden weeks for Falcon nesting in the cattle country. Evidently many sets are complete by April first, for we found one far advanced in incubation on the 19th, and another hatching on the 22nd. If robbed early in the season, second sets are almost invariably laid in a new but closely related situation.

Probably none but the few elect would enjoy a rhapsody on color variation in Falcons' eggs, and the non-elect would raise holy hands of horror over the thwarted hopes of these feathered brigands. So be it, then, and suffice to say that neither Brooks nor Fuertes can paint a bird with such bewitching grace as Nature herself displays in the lawless tinting of a Falcon's egg. She (*varium et mutabile semper femina*) dips her brush in oörhodeine and she feathers and stipples or twirls and scumbles, or as suddenly ceases, until the hearts of her poor votaries are seized with an exquisite pain—but those dear woes we may not voice.

In spite of the fact that the Prairie Falcon is really one of the commonest Raptors in the West, its discovery within the United States was not reported till 1853,[1] and it long remained a rare and little-known bird. Coues in 1874[2] confessed to having seen but one of them; and a set of eggs taken in 1860 by Dr. Hayden, in the Wind River Mountains of Wyoming, was for some years unique. In this respect the history of the Prairie Falcon shows analogy to that of certain sea-fowl. Birds that have been known vaguely for years as inhabitants of the open ocean may not be fully known until their breeding haunts are discovered,—until they are anchored, as it were, to land by the strong chains of the reproductive instinct. The Prairie Falcon is likewise a dweller of the blue serene. The level prairies and the rolling hills are his ocean, and he is a bold corsair, snatching his prey at will from the crested billow (of soil) and caring nothing for the clumsy men-of-war, save to spurn them. But when spring comes on then he must seek some frowning cliff which fronts the prairie wave; and then he must place himself and those dearer than self at the mercy of the curious public, whether friendly or hostile.

[1] Cassin, Birds of California and Texas, I., p. 88, pl. 16.
[2] Birds of the Northwest (1874), p. 346.



Taken in San Luis Obispo County *Photo by the Author*

LEAVING THE COUNTRY

No. 320

Peregrine Falcon

A. O. U. No. 356. **Falco peregrinus anatum** (Bonaparte).

Synonyms.—American Peregrine Falcon. Great-footed Falcon. Duck Hawk.

Description.—*Adult:* Above dark bluish ash, or slaty black with a glaucous "bloom," the feathers lighter edged, and the larger ones obscurely barred; top of head appreciably darker,—almost black; wings long, and pointed by the second quill, the first notched about two inches from the end; primaries distinctly barred on the inner webs with ochraceous; tail and upper tail-coverts narrowly barred with ashy-gray and blackish, whitish-tipped; area below eye, produced downward as broad "moustache," sooty black; throat and chest buffy white or pale ochraceous, immaculate or nearly so; remaining underparts buffy white or ochraceous buffy, everywhere heavily spotted, on breast with blackish crescentic marks, posteriorly lengthening into braces and bars; tarsus feathered two-fifths of the way down; toes and claws lengthened. Bill blue-black, but with cere and much of base yellow; feet yellow; claws black. *Immature:* Above sooty brown, plain or with some glaucous bloom with advancing age; feathers not barred, but more broadly and distinctly edged with ochraceous buff; top of head lighter than back by reason of ochraceous and whitish admixture; bars of tail obsolete on central feathers; below heavily *striped* with sooty brown, or if barred, only on flanks; chest never immaculate,—narrowly streaked with sooty brown; prevailing color of underparts deeper buffy or ochraceous than in adults. Adult male, length: 393.7-457.2 (15.50-18.00); wing 292.1-330.2 (11.50-13.00); tail 152.4-196.9 (6.00-7.75); culmen 19.6 (.77). Adult female, length: 457.2-533.4 (18.00-21.00); wing 342.9-374.7 (13.50-14.75); tail 177.8-235 (7.00-9.25); culmen 24.1 (.95).

Recognition Marks.—Crow size; dark coloration; black cheeks and "moustache"; long pointed wings; swift, easy flight.

Nesting.—*Nest:* None; eggs laid on floor of cranny or on ledge of cliff, or rarely in hollow trees or even on ground (with some improvisation of grass or hay). *Eggs:* Usually 4 or 5, occasionally 3, 6 of record; basally pinkish white but, save in rarest instances, completely overlaid with "rich chocolate" (vinaceous tawny, pecan-brown or liver-brown), mottled with self shades to blackish red. Av. size 52.5 x 41 (Bendire). Av. of 19 eggs from Santa Barbara, five sets, the product of a single pair of birds, in the M. C. O. coll.: 53.7 x 43 (2.11 x 1.69); index 80. *Season:* March 10–April 10; one brood.

Range of *Falco peregrinus.*—Major portion of Northern Hemisphere, wandering south in winter through Africa and South America.

Distribution in California.—Fairly common resident, chiefly coastwise and on the Santa Barbara Islands. Breeds on the sea-fronting cliffs and on the heights of adjacent ranges; also interiorly (Escondido, Lakeside, San Onofre, Western Kern County, etc.). Numbers considerably augmented in winter.

Authorities.—**Gambel** (*Falco anatum*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 46 (upper California; nesting along coast); *Fisher*, Hawks and Owls of the U. S., 1893, p. 106, pl. 15 (food); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 44 (San Joaquin Valley; habits); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 56 (s. Calif. ids.; nesting habits, food, etc.); *Oberholser*, Auk, vol. xxxv., 1918, p. 207 (nomencl.).

Taken in Monterey County *Photo by the Author*

A GLIMPSE OF THE PINNACLES

A PAIR OF PEREGRINES HOLD THIS REGION UNDER TRIBUTE

THE NAME Duck Hawk is really a tribute to the skill and prowess of this highly endowed bird; but it is belittling, nevertheless, to institute a comparison, however remote, between the noble Peregrine and the multitudinous "Hen Hawk" of the vulgar conception. This is the *PEREGRINE FALCON*, if you please, the American bird being not different, save for a somewhat whiter breast (which only enhances his beauty) from the "falcon gentil" of song and story, the most courageous, the most spirited of all birds of prey. Like the Prairie Falcon, it secures an intended victim either by striking it from above and bearing it down to earth by its acquired momentum, or else by snatching it from the ground with incredible swiftness. Many stories are told of its seizing and making off with wounded game from under the very nose of the hunter; and it is especially fearless in its pursuit of wild ducks, which it is said to follow systematically for days at a time during the migrations.

It is undeniable that chickens occasionally fall victims to this dark corsair, but Bendire is of opinion that the Falcon rather disdains such stupid quarry, and is sure that they sometimes engage in the pursuit of

poultry from sheer mischief without intention of harm. Certainly the Peregrine need not deny himself any luxury which his appetite craves, and young meteors would be quite in his line if they were only a little more juicy.

The Peregrines are fairly common about the Santa Barbara Islands, where they subsist largely upon sea-birds. There is a scattering population, also, along the rugged sea-cliffs and outlying islets of the western coast. Most of the mainland birds, however, even of those which lay the coast under daily tribute, find more congenial nesting sites on the cliffs

Taken in Kern County *Photo by the Author*

A NESTING LEDGE OF THE PEREGRINE FALCON

of the coastal ranges, at a distance of from five to twenty miles back from the seashore. And because water-fowl rather than sea-fowl are Peregrine's specialty, a few pairs nest along the east exposure of the innermost coast range, where they may review the tenants of Buena Vista and Tulare lakes, as well as the flooded lowlands of the lower San Joaquin. Tyler[1] gives several interesting anecdotes of this bird's occurrence in the Fresno section; among them the following: "The flight of the Duck Hawk is so

[1] Pacific Coast Avifauna, No. 9, Some Birds of the Fresno District, by John G. Tyler (1913), p. 45.

marvelously fast that even the ducks have not a chance to escape, unless there is some pond or slough near by into which they can dive. The writer remembers standing, with several companions, on the shore of Summit Lake one late October day, when, upon hearing a sound like a heavy wind blowing through the tules, we turned and saw a duck plunge into the lake from a height of not less than six hundred feet. The splash of the impact resembled the report of a revolver. 'Bullet-hawk,' called one of the men, and looking up we saw one of these long-winged pirates making off for a new field.

"At another time we noticed a small flock of teal winging their way toward us, with a black speck fully a quarter of a mile in their wake and slightly above them. The flight of the ducks, rapid as it was, seemed slow in contrast to that of the hawk. The latter was almost upon the unsuspecting birds in an incredibly short time. Suddenly the ducks scattered and half a dozen teal fell with cries of fear into the water almost at our feet. Had there been no water directly under them at the moment the hawk was seen, there is no doubt that at least one duck would have been captured. A friend tells of seeing a Duck Hawk dash at a lone goose that was flying over, striking it head-on with such force that it fell within a few feet of the observer. Besides a broken wing the bird seemed to have suffered otherwise to a great extent, for it soon expired."

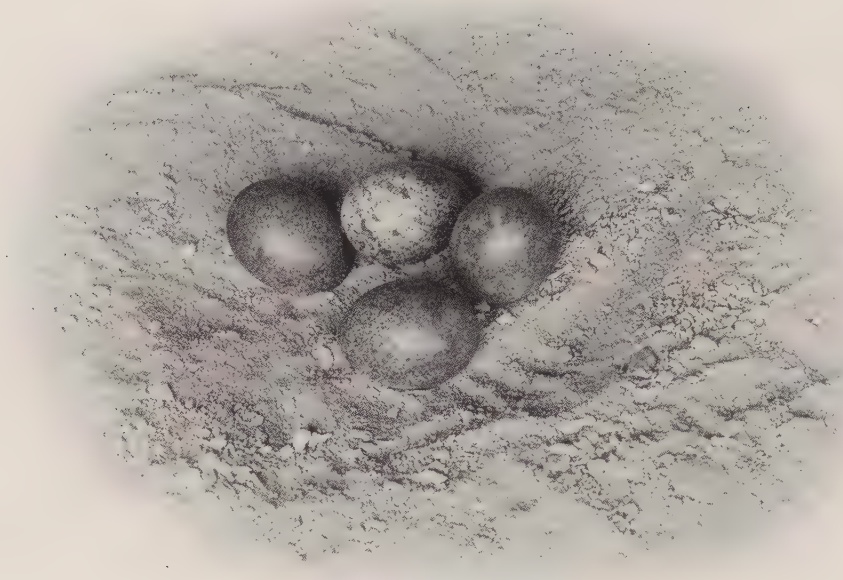
Taken in Washington *Photo by the Author*

A PAIR OF PEALE FALCONS

THESE REPRESENT A DARKER RACE OF THE PEREGRINE FALCON TYPE

For a nesting site the Falcon chooses an inaccessible cranny in some commanding cliff. In default of shelter, an exposed ledge midway of some sheer precipice will do as well. The southern coast ranges offer a considerable variety of rounded pockets or lens-shaped cavities, left either by the defection of a nodule, or else by the evanescence of some frail substance once resident in the old sandstone. These chambers are naturally lined with clean dry sand, and they afford ideal homes for Falcon or Condor. The birds exhibit a deep attachment for a given locality, and although they may shift from niche to niche, they will not desert their chosen cliff for anything short of gun-fire. Mr. Clarence S. Sharp mentions[1] a pair

[1] Condor, Vol. IX., May, 1907, p. 86.



Taken in Kern County *Photo by the Author*

A CLOSE-UP OF n/4 DUCK HAWK
SO CLOSE, INDEED, THAT THE NEAREST EGG IS DISTORTED

which to his knowledge had occupied the same cliff for twenty years, and were rated as "old residents" before his time. In such an instance, however, it must be borne in mind that a desirable nesting site will hold even a widowed bird. A new mate will be secured and this newcomer, if deprived of its mate in turn, is quite likely to hold the ancient fortress and to bring home another bridegroom.

The eggs of the Peregrine, four or five in number, are among the handsomest known. A background of pinkish buff is habitually buried in a smudge of vinaceous tawny, upon which spots and blotches of richest chocolate are vaguely outlined. Certain eggs in the collection of Mr. Donald Cohen of Alameda, and Mr. Chase Littlejohn of Redwood City, are best described as red. The circumstances under which the last-named eggs were found are worth special record. A waif barrel, half full of straw packing, was once cast up on the desolate marshes of the San Francisco Bay region at a point several miles east of Redwood City. Here, because of an undisputed territory filled with the California Clapper Rails, wild

ducks, and other delicacies, a pair of Duck Hawks made their home and provided upon this lowly shake-down, year by year, a clutch of five glowing beauties.

One speaks without compunction of the robbery of the Duck Hawks' nests, not alone because the owners are corsairs themselves, but because a judicious selection of *first sets* will not impoverish the species. If not further disturbed, the falcons will invariably nest again the same season. A writer in the Auk, Chas. R. Keyes, of Mt. Vernon, Iowa, tells of a pair nesting on the Cedar River palisades, from which a set of six eggs was taken on April 5th, 1898. Three weeks later another set of six was found across the river—undoubtedly the product of the same pair of birds.

Peregrines, like Prairies, are exceedingly noisy in defense of their young. Their notes must differ somewhat, I suppose, from those of the Prairie, but I confess I cannot distinguish them to my own satisfaction.

When the infantile appetite is fully developed, then it is that all nature must pay tribute. The bird figured here under the name of "Master Peale" was encountered in June, 1907, on Carroll Islet, one of the rocks, now protected, off the west coast of Washington. The youngster was probably the runt of a scattered brood and we judged that he must have broken shell by the first of May. He was in charge of two very solicitous parents, who guarded his every movement and published screaming bulletins of our progress—an attention which, by the way, began to pall upon our senses by the end of the fourth day.

Taken in Washington *Photo by the Author*

MASTER PEALE

The clamor was renewed as often as we appeared near Master Peale's favorite perch, an old dead spruce tree; and the old birds, when they could no longer control their indignation afoot, relieved their pent-up feelings

by giddy swoops and sallies, or else took a turn around the sea-wall, screaming frightfully.

Given speed, courage, and good appetites, all of which these birds undoubtedly possess, it is difficult to conceive of more Eden-like conditions than those here provided for the Falcons. Sea-birds of eleven species make Carroll Islet home, and it is in the highway of passage during migrations. The Falcons had only to covet and kill morning, noon and night. Indeed, so lavish was the provision made for them that their presence did not seem to cause concern to the myriad sea-fowl. The Falcon's choice appeared to fall oftenest upon the Cassin Auklets, and most of the tragic feather-heaps discovered belonged to this species. Since the Auklets fly only by night during the breeding season, we were forced to conclude that the Falcons secured their favorite quarry after nightfall or else very early in the morning.

No. 321

Pigeon Hawk

A. O. U. No. 357. **Falco columbarius columbarius** Linnæus.

Description.—*Old male:* Above bluish gray or dark slaty blue; feathers with black shafts (and sometimes pale or rusty edges); general color usually interrupted by outcropping white or buffy on nape; tip of wing formed by 2nd and 3rd primaries, 1st shorter than 4th, 1st and 2nd sharply notched on the inner web; the 2nd and 3rd slightly emarginate on the outer web; inner webs of all quills barred or spotted with whitish; tail black, narrowly white-tipped and crossed by four narrow, whitish bars (slaty on middle pair), the anterior one concealed; chin, throat, and jugulum pale ochraceous buff, nearly immaculate; remaining underparts tawny or ochraceous, heavily streaked with dark umber, sometimes changing to bars on the flanks; sides of throat and cheeks finely pencilled with umber; axillars and lining of wings dusky with some admixture of tawny, and heavily marked with paired round spots of white. Iris brown; bill and claws blue-black; feet yellow; cere and base of bill greenish yellow. This high plumage is quite rare. *Adult female and male in usual dress:* Above dark umber-brown, glaucous or not; the head and neck much varied, the back and scapulars less varied by buffy or rusty edgings and blackish central or shaft-streaks; quill spots ochraceous buff; the outer webs of primaries after second also ochraceous-spotted; underparts not noticeably different from male in high plumage. *Immature:* Perhaps lighter above and with more ochraceous buffy edging; otherwise not appreciably, or at least constantly, different from adult. Adult male, length: 254-292.1 (10.00-11.50); wing 177.8 (7.00); tail 124.5 (4.90); bill 12.2 (.48). Adult female, length: 304.8-330.2 (12.00-13.00); wing 215.9 (8.50); tail 137.2 (5.40); bill 14.5 (.57).

Recognition Marks.—Little hawk size; swift flight; sharp wings; stout pro-

portions otherwise; heavily umber-streaked lower parts; tail crossed by *four* whitish bars, as compared with *F. c. richardsoni*, darker; lighter and more extensively spotted than *F. c. suckleyi*.

Nesting.—Not certainly known to breed in California. *Nest:* In hollow limbs of trees or in crannies about cliffs. *Eggs:* 4 or 5; pinkish white, spotted and blotched with reddish brown or chocolate, or else cinnamon-buff, sprinkled and dotted with heavier shades of the same color. Av. size 38.1 x 30.5 (1.50 x 1.20). *Season:* c. May 1st; one brood.

Range of *Falco columbarius*.—Northern North America; in winter south to northern South America.

Range of *F. c. columbarius*.—Breeds from northwestern Alaska and Mackenzie, south in the mountains to Colorado and (probably) California, and from central Keewatin, northern Ungava, and Newfoundland, south to Maine and the northern peninsula of Michigan. Winters from California and the Gulf States through middle America to Venezuela and Ecuador.

PIGEON HAWKS

Distribution in California.—Rare summer resident in the mountains (Mammoth Lakes, June 26, 1919, June, 1921), undoubtedly a breeder but eggs have never been reported. Common winter resident and migrant, chiefly west of the Sierras.

Authorities.—Gambel (*Falco columbarius*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 46 (upper California); *Coues*, Birds of the Northwest, 1874, p. 345 (syn., desc., discussion of eggs, etc.); *Fisher*, Hawks and Owls of the U. S., 1893, p. 109, pl. 16 (food); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 68 (status in Calif.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 57 (s. Calif. ids.).

THE PIGEON HAWK is preëminently a collector's bird. Reports of occurrence are a cherished tradition with the fraternity, but positive

knowledge of the bird in California is confined to a few skins in cabinets; while tradition itself is concerned chiefly with disconnected records, or with anecdotes of behavior under gun-fire, nature of quarry, etc. There are a few baffling records of the bird's appearance in late spring or late summer, but there is only one serious claim of a California nesting record, that made by H. R. Taylor, the immortal "Harry," who, according to Stephens (MS), took a set of eggs on the 6th of April, 1888, from a ledge nest on a steep bluff in Santa Clara County. The center of the bird's distribution in midwinter is in the chaparral-covered foothills of southern California.

If a scrutiny, therefore, of all little hawks is maintained throughout the year, and with special diligence in winter and early spring, the search will be rewarded now and then by the sight of a bird whose movement is a little more rapid and dashing than that of the ubiquitous Kestrel. The wings seem to reach forward with a stroke like that of a strong swimmer; and, altogether, there is an air of indefinable quality and power about the diminutive Pigeon Hawk which does not pertain to his less spirited cousin. Not content with the humble quarry which usually satisfies the commoner species, this little winged terror makes havoc among the Blackbirds, Meadowlarks, and smaller songsters. Himself not larger than a full-sized pigeon, the Hawk sometimes pursues a Mourning Dove with relentless fury, and easily overtakes this fleet bird, unless it finds cover or the protection of man. The audacious creature has even been credited with killing Ptarmigan, and it sometimes attacks sea-fowl of thrice its weight, through sheer exuberance of spirits.

Now and then, also, one comes upon the Pigeon Hawk seated at rather close quarters; for it is less suspicious than most, and it hails from northern wilds or mountain fastnesses which do not know the fear of man. At such a time one is struck by the quaint, almost antique, appearance of the tawny breast with its heavy umber streaks; and the glaucous bloom of the upperparts might have come from milady's cheek when she went hawking, centuries ago. In the hand, the round white spots, which sprinkle the feathers lining the bird's wings, make it seem still more like a product of curious mediæval art.

"Although the well known Pigeon Hawk is pretty generally distributed over the entire United States during the fall and winter seasons, by far the greater number breed north of our border, and comparatively few remain as summer residents, at least east of the Mississippi River, and those that do generally confine themselves to the mountain districts and to the thinly settled and heavily wooded regions along our Northern States. In the Rocky Mountains, as well as in the Sierra Nevada and Cascade Ranges, and their spurs, the Pigeon Hawk is probably quite a

common summer resident, but as yet its nest and eggs have been rarely taken, and even where they have been found, there remains more or less doubt as to their proper identification, as the two closely allied forms, *Falco columbarius suckleyi* and *Falco richardsonii* occur in some of these mountains as well, and are very liable to be mistaken for the true Pigeon Hawk, even by fairly well posted ornithologists, and almost certainly by the average collector." (Bendire.)

No. 321a Black Pigeon Hawk

A. O. U. No. 357a. **Falco columbarius suckleyi** Ridgway.

Synonyms.—Black Merlin. Suckley's Merlin.

Description.—*Adults:* Similar to *F. columbarius* but much darker. *Adult male in high plumage:* Above blackish slate, nearly black on hind-neck, definitely black on lesser wing-coverts; pileum and occiput finely streaked with dusky; remaining upper plumage sharply streaked by black shafts of feathers; flight-feathers black on exposed surfaces, the white spotting plainly visible from below but much reduced in extent; tail black above on exposed portion, narrowly tipped with white, below crossed by three obsolescent white bars (appearing only on inner webs), the distal bar nearly two inches from tip of tail; below as in *F. columbarius*, but streaks sharper, heavier, and nearly uniform sooty black, the throat finely streaked throughout, the streaks tending to confluence in "pencils"; tawny wash of sides, thighs, and flanks heavier. *Adult female, and male in more usual plumage:* Above warm brownish black, the blue present as a gloss but much reduced in intensity, tawny streaks on sides of neck tending to invade nape; spotting of wings more extensive and strongly tawny-tinged; tail crossed by four subterminal bars, of which two visible from above, white or tinged with tawny; underparts more heavily tinged with tawny and streaks a little more diffuse, heavier and tending to confluence on sides. *Young:* Changes as in *F. columbarius* but always darker. Size as in preceding.

Recognition Marks.—Little hawk size; blackish or slaty above; throat finely pencilled with black; underparts heavily streaked with black.

Nesting.—Not known to breed in California. *Nest:* In high holes in trees. *Eggs:* Not yet taken—presumably much like those of preceding form.

General Range.—Pacific Coast district from northern California to Sitka, east at least along eastern slopes of Cascades and Blue Mountains in Oregon and Washington. Possibly ranging farther north in winter.

Occurrence in California.—Rare winter visitor; only two positive records: Yreka, Siskiyou County, and Claremont, Los Angeles County, by J. F. Illingworth (Dec. 6, 1895).

Authorities.—Baird, Brewer, and Ridgway (*Falco lithofalco*, var. *suckleyi*), Hist. N. Amer. Birds, vol. iii., 1874, p. 147 (Yreka); *Merriam*, U. S. Dept. Agric., N. Amer. Fauna, no. 16, 1899, p. 113 (Mount Shasta); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 49 (Claremont, Los Angeles Co.).

THE BLACK MERLIN, like the Pigeon Hawk proper, is a northern species which occasionally straggles south in winter. Although there are

still only two positive records of the bird's occurrence in California, one feels sure that this paucity of records is due rather to our own inattention than to failure on the bird's part. Indeed, one who knows the predilection of this "saturated" form of *F. columbarius* for the humid coasts, will surmise that the Black Merlin is of regular though rare occurrence in Humboldt and Del Norte counties, and will not be surprised to find it breeding there.

Of their occurrence further north Mr. J. H. Bowles says:

"During the fall and early spring they are most often to be met with in the open prairie country, and on the extensive tide flats that are to be found along Puget Sound. In such localities there is always an abundance of the smaller migratory birds, which seem to make up almost the entire sum and substance of their food supply. These, so far as I have seen, are invariably caught on the wing, sometimes by a direct swoop, and at others by the falcon trick of turning breast upwards. A thrilling illustration of this last named habit came to my notice when half a dozen Tree Swallows were teasing one of these Merlins as he was passing over a large marsh. This passage at arms took place at a considerable height from the ground and formed a most vivid picture. The Swallows carefully kept above the Hawk so that he could not pounce upon them, and occasionally one, bolder than the rest, would dive down and peck him on the back; but the larger bird seemed to pay no attention whatever. Of a sudden—and it was almost as much of a surprise to me as it must have been to the Swallow—the apparently listless Hawk met one of these attacks by turning gracefully breast uppermost. He literally turned a half-somerset in midair, and so accurately was the movement timed that the over-confident Swallow flew directly into the outstretched talons of his enemy.

"Occasionally grasshoppers and large dragon-flies are caught and eaten, always when flying, and seemingly more for sport than for the desire for food. In this connection I may express my belief that they often take pleasure in the chase when not intending to kill, for I have seen one repeatedly dash through a large flock of terrified Sandpipers without apparently attempting to catch any of them."

No. 321b Richardson's Pigeon Hawk

A. O. U. No. 358. **Falco columbarius richardsoni** (Ridgway).

Synonyms.—American Merlin. Richardson's Merlin.

Description.—*Adults* somewhat similar to *F. columbarius* but larger and much lighter in coloration. *Adult male:* Above bluish dusky or brownish slaty gray as to ground but much relieved by feather-skirtings of rusty brown, and by blackish shafts; pileum and hind-neck chiefly rusty brown (nearly Prout's brown) finely streaked with black; wings and tail brownish dusky, the former, both on remiges and covert feathers,

crossed by numerous interrupted bars of whitish and tawny, the latter tipped with white and crossed with five prominent white bars; flight-feathers and tertials also tipped with white or grayish; underparts chiefly cream-buff as to ground, but white, immaculate, on throat; jugulum finely pencilled and breast heavily streaked with sepia (each streak with darker shaft-line); sides and flanks still more broadly marked, or else sepia spotted with whitish; flags and posterior underparts sparsely pencilled with sepia or unmarked centrally; lores and a faintly defined superciliary buffy; forehead buffy white sharply streaked with black; sides of head and neck, forming transitional area, finely streaked buffy, rusty, sepia, and whitish in varying proportions. *Adult female:* "Differing in coloration from the male only in points of detail. Ground color of the upperparts clear grayish drab, the feathers with conspicuously black shafts; all the feathers with pairs of rather indistinct rounded ochraceous spots, these most conspicuous on the wings and scapulars. Secondaries crossed with three bands of deeper, more reddish, ochraceous. Bands of the tail pure white. In other respects exactly like male" (Ridgway). *Young birds* are said to be more extensively rusty above, with broader and more reddish tail-bands, and to be unmarked on lower tail-coverts and crissum. Length 304.8-355.6 (12.00-14.00). Measurements of male: wing 195.6 (7.70); tail 127 (5.00); bill 12.7 (.50); tarsus 33 (1.30). Female: wing 228.6 (9.00); tail 154.9 (6.10); bill 14 (.55); tarsus 35.6 (1.40).

Recognition Marks.—Little hawk size; brownish cast of plumage above; heavy ochraceous spotting of wing (much more extensive than in Pigeon Hawk); tail crossed by *six* bands (including the terminal band).

Nesting.—Does not breed in California. *Nest:* In cavity of tree or crevice of cliff; rarely of twigs in treetop. *Eggs:* 3 to 5; basally white or creamy buff, heavily sprinkled, spotted, and blotched with shades of cinnamon and rich chocolate. *Eggs:* Sometimes an exact miniature of those of *F. peregrinus.* Av. size 40.6 x 31.5 (1.60 x 1.24). *Season:* May; one brood.

Range of *F. c. richardsoni.*—Breeds in the Great Plains region from North Dakota and Montana to southern Alberta and central Saskatchewan. Occurs broadly during migrations, casually to the Pacific Coast; and winters south to Texas, Sonora and Lower California.

Occurrence in California.—Rare visitor in winter; three records: Kern County, Los Angeles County, and San Diego County.

Authorities.—Henshaw (*Falco columbarius*, var. *richardsoni*), Rep. Orn. Wheeler Surv., 1876, p. 262 (Walker Basin, Kern Co.); *Daggett*, Condor, vol. vii., 1905, p. 82 (San Fernando Valley, Los Angeles Co.); *Bishop*, Condor, vol. vii., 1905, p. 142 (Witch Creek, San Diego Co.); *Tyler*, Condor, vol. xviii., 1916, p. 197 (Mendota, Madera Co.).

IF THE Northern Pigeon Hawk is a "collector's bird," the Richardson Merlin is a collector's prize. Indeed, most of the Pigeon Hawks which are annually taken by collectors are shot in the hope that they may prove to be the rare *richardsoni.* There is nothing to say of the bird's behavior which would serve to distinguish it from the commoner species; and only the expert might guess that it was perhaps a little lighter in color.

No. 322

American Kestrel

A. O. U. No. 360. **Cerchneis sparverius sparverius** (Linnæus).

Synonyms.—Sparrow Hawk. Rusty-crowned Falcon. Desert Sparrow Hawk.

Description.—*Adult male:* Top of head slaty blue, with a rufous crown-patch; sides of head and throat white, a black stripe from the lower eye-lid anteriorly, proceeding obliquely downward; a similar transverse bar on the side of the neck, and a dab on either side and sometimes in the middle of the cervix; back, scapulars, and tail rusty red; strong black bars in variable quantity across the middle of the back and lower scapulars, or rarely reaching cervix; a heavy subterminal black band on tail, the central feathers tipped with rufous and the others with white; the wing-coverts and inner quills (including secondaries) slaty blue, the former black-spotted and the latter crossed by a heavy black bar; primaries blackish, the point of wing formed by the 2nd and 3rd, the 1st sharply emarginate on the inner web, the 2nd slightly so; all the wing-quills heavily spotted with white on the inner webs, these spots confluent in bars on the under surface; below whitish or slightly tinged with buffy, immaculate on lower belly, flanks, and crissum; cross-barred with black on axillaries; heavily dusky-spotted on lining of wings; elsewhere (save on throat, as noted above) lightly tinged or heavily shaded with rufous,—the fore-breast usually but not always unmarked, the sides and middle belly very lightly or quite heavily spotted with black. Bill bluish black; cere and feet yellow. *Young male:* Similar to adult, but lower scapulars and wing-quills lightly tipped with white; not so heavily shaded with rufous below. *Adult female:* Subsimilar, but wings like the back; the black barring regular and continuous over entire back, wings (except quills), and tail, the tail having ten or twelve bars, but the subterminal bar often larger; barring indicated narrowly across upper tail-coverts; below ochraceous-tinged as to ground, heavily and boldly streaked on breast and sides with rusty brown; the sides sometimes barred with blackish. *Young female:* "Similar to adult, but colors softer, deeper, and more blended" (Ridgway). Adult male: length 222.3-266.7 (8.75-10.50); av. of nine specimens: wing 183.9 (7.24); tail 117.6 (4.63); bill 12.7 (.50). Adult female: length 228.6-304.8 (9.00-12.00); av. of eight specimens: wing 190.5 (7.50); tail 128.5 (5.06); bill 13.2 (.52).

Recognition Marks.—Robin size; but appearing larger. The black markings about head and rufous of upperparts distinctive.

Nesting.—*Nest:* In hollow trees, often in deserted woodpecker holes or in crannies of cliffs. *Eggs:* 4 to 6; basally white, sprinkled, spotted, or blotched with cinnamon, orange-cinnamon, or dark rufous (kaiser brown), often uniformly washed with dilutions of the same pigments, or at least so heavily sprinkled as to appear uniform pinkish buff, pale pinkish buff, pinkish cinnamon, or orange-cinnamon. Av. of 16 sets in the M. C. O. coll.: 34.5 x 27.7 (1.36 x 1.09); index 80. *Season:* April–June, according to altitude; one brood.

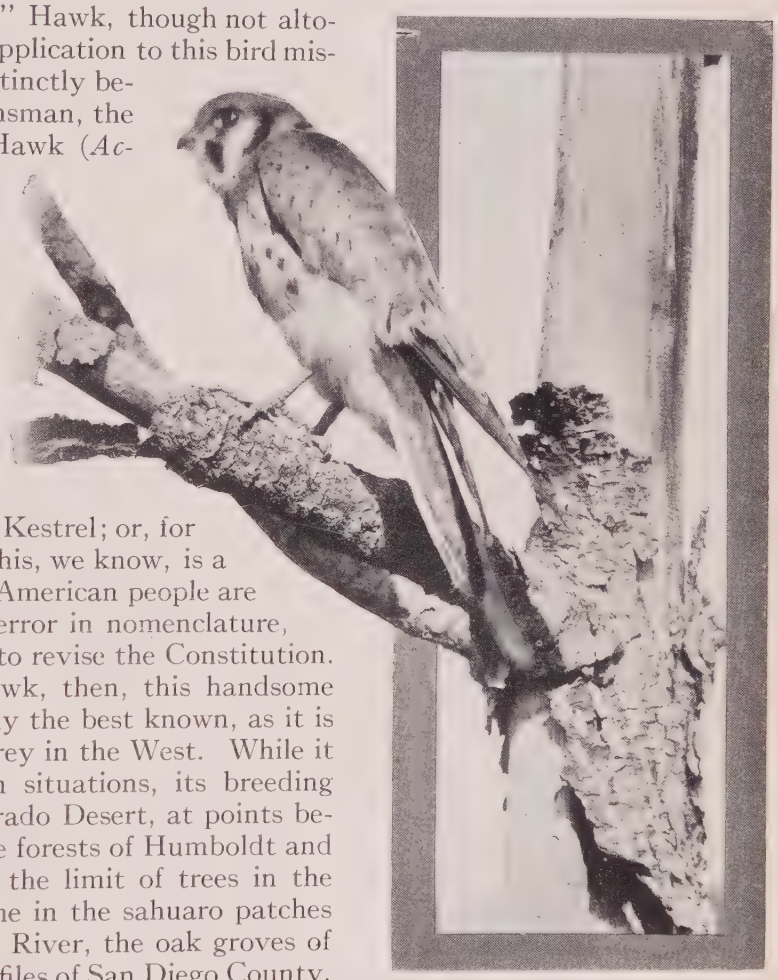
Range of *Cerchneis sparverius.*—North and South America.

Range of *C. s. sparverius.*—North America. Breeds from central Yukon, northwestern Mackenzie, southern Keewatin, and Newfoundland, south to the Gulf States, Durango, and southern California. Winters from British Columbia, Colorado, Kansas, Ohio, and Massachusetts, south to Guatemala and Costa Rica.

Distribution in California.—Resident. Of general occurrence throughout the State, breeding from lowest "Sonoran" deserts up irregularly through Canadian zone, where numbers dwindle rapidly. Numbers considerably augmented in winter both by reason of retreat from the higher levels and by invasion from the northern interior.

Authorities.—Vigors (*Falco sparverius*), Zool. Voy. "Blossom," 1839, p. 15 (Montery); *Fisher*, Hawks and Owls of the U. S., 1893, p. 115, pl. 17 (food); *Rising*, Condor, vol. iii., 1901, p. 129 (nesting habits near Santa Monica); *Grinnell*, Univ. Calif. Publ. Zool., vol. xii., 1914, p. 126 (Colorado Val.; crit.; syst.); *Wetmore*, Condor, vol. xviii., 1916, p. 112 (speed of flight).

THE NAME "Sparrow" Hawk, though not altogether undeserved, is in its application to this bird misleading. The appellation distinctly belongs, rather, to a remote kinsman, the so-called Sharp-shinned Hawk (*Accipiter velox*), who is the bird-killer *par excellence*. Moreover, the word Hawk should never be applied to a Falcon. Far better is the Old World habit of individualizing the Falcons, and of giving each a distinctive name, such as Lanner, Hobby, Merlin, etc. The proper name for *Cerchneis s. sparverius* is the American Kestrel; or, for local use, simply Kestrel. This, we know, is a counsel of perfection, for the American people are as little likely to correct an error in nomenclature, once established, as they are to revise the Constitution.



Taken in Oregon *Photo by A. W. Anthony*

AMERICAN KESTREL

Kestrel, or Sparrow Hawk, then, this handsome little Falcon is unquestionably the best known, as it is the most abundant, bird of prey in the West. While it shows a preference for open situations, its breeding range extends from the Colorado Desert, at points below the level of the sea, to the forests of Humboldt and Del Norte counties, and to the limit of trees in the Sierras. It is equally at home in the sahuaro patches bordering upon the Colorado River, the oak groves of San Luis Obispo, the rocky defiles of San Diego County, or the pines of Modoc. Commanding points of rock are sure to be worn smooth by the clasp of many

Taken in Riverside County *Photo by the Author*

A DETERMINED INVESTIGATION

sharp-spurred claws, and tree-tops serve for sentry boxes whenever the birds pass that way. Telegraph poles are regarded as a special convenience, since they traverse the treeless stretches which afford no other watch-tower; but fence-posts will suffice in default of more elevated stations. From such points of vantage as these the birds attentively watch the happenings on the ground, and dive down whenever they consider that their presence is needed by mouse or grasshopper.

The Falcon trusts, so far as his prey is concerned, to his elevated position, and does not hesitate to glance freely from side to side; while the wayfarer is regarded as likely as not with a frank curiosity not unmingled with friendliness.

Much time is spent, also, upon the wing, not circling after the manner of Accipiters and Buteos, but in passing rapidly over the scene, or else flying slowly but directly over such promising areas as grassy meadows and fallow fields. Now and again the bird checks itself suddenly and pauses at a good height to study a suspicious movement in the grass below. It will thus flutter over one spot for a minute at a time, and then pass on disappointed, or else pounce suddenly upon its prey and bear it off to

some elevated perch for quiet consumption. When the wind is blowing strongly, the Hawk no longer flutters at its critical stops but only balances upon the wind, so nicely, indeed, that its wings are almost motionless.

It is this custom which has earned for his European brothers such picturesque names as Windhover and Standgale.

One must envy the marvelous eyesight which enables a flying bird to detect such humble quarry as a cricket from a height of fifty or eighty feet. Yet the bird, like the modern air-man, is made to realize that appearances are sometimes deceptive. At Pizmo I saw a Sparrow Hawk launch from a telephone wire, seize a brown object from the ground, and rise with unwonted ease. The bird himself realized that there was something wrong, and when he discovered that he held a dried "horse bun" in his talons, he dropped it in disgust. The humble counterfeit had probably been stirred by the wind to a life-like activity.

Always graceful, the Sparrow Hawk is seen to best advantage during the courting season, when the male reaffirms his fondness for his life-long mate by circling about her as she sits upon the tree-top; or he measures the height of his devotion by ascending to the clouds before her, and dashing himself at her feet again with shrill cries of *Killy, killy, killy*. To hear the snarling clamor of the birds, one would think that they were not

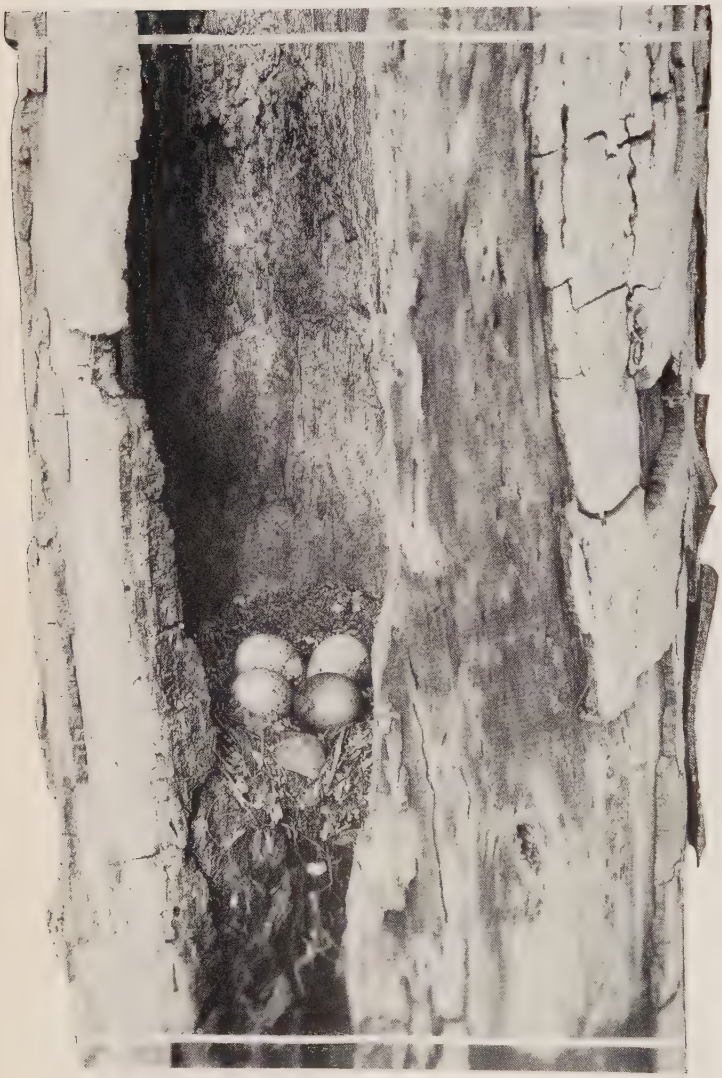
Taken in Riverside County
Photo by the Author

"BRINGING IN THE BACON"

THE STUB YIELDED A HANDSOME SET, N/5, OF THE KESTREL

getting on nicely; but this is a mistake, for the high-pitched conversation is really very amiable in character, and neither bird would think of parting from its consort, for however brief a space of time, without a screamed farewell of unquestionable tenderness.

Sparrow Hawks nest in holes in trees when these are convenient, using either natural cavities or the deserted tenements of flickers and other woodpeckers. The higher these rented quarters, the better the birds are satisfied, but holes not over four feet from the ground are of record. In default of such accommodations, old magpies' nests, or even open-topped crows' nests have been utilized; but a more common expedient is to resort to the romantic crannies and hidey-holes of the rocky cliffs. In such situations this diminutive falcon appears to recall his noble ancestry; and I have fancied that he was here a shade more valiant in defense of his young. Certainly the Red-tail does not care for that particular stretch of cliff; and the Prairie Falcon seems to regard the lesser spit-fire with quaint indulgence, or else to treat him with that magnanimous unconcern which a Newfoundland shows to a terrier.



Taken in the Sespe *Photo by D. R. Dickey*

NEST AND EGGS OF AMERICAN KESTREL

On Santa Cruz Island I once found a pair of Kestrels nesting in a tunnel in an earth-bank, excavated, no doubt, by a pair of hard-working Flickers (*Colaptes cafer collaris*) who occupied fresher quarters hard by. And

getting on nicely, but this is a mistake, for the high-pitched conversation is really very anxious in character, and neither bird would think of parting from its consort, for however brief a space of time, without a screamed farewell or an apostrophe to Providence.

Sparrow Hawks nest in holes in trees when these are convenient, using either natural cavities or the deserted tenements of flickers and other woodpeckers. The higher these rented quarters, the better the birds are satisfied, but holes not over four feet from the ground are of record. In default of such accommodations old magpies' nests, or even open-topped crows' nests have been utilized; but a more common expedient is to resort to the romantic crannies and hidey-holes of the rocky cliffs. In such situations this diminutive falcon appears to recall his noble ancestry; and I have fancied that he was here a shade more valiant in defense of his young. Certainly the Red-tail does not care for that particular stretch of cliff, and the Prairie Falcon seems to regard the lesser spitfire with quaint indulgence, or else to treat him with that magnanimous unconcern which a Newfoundland shows to a terrier.

American Kestrel

Male and female, about ⅔ life size

On Santa Cruz Island I once found a pair of Kestrels nesting in a tunnel in an earth-bank, excavated no doubt, by a pair of hard-working Flickers (*Colaptes cafer collaris*) who occupied fresher quarters hard by. And

at Cholame we discovered wolves in a sheep cote, or in other words, a pair of Sparrow Hawks nesting in a dove cote. The doves did not seem to fear the intruders, and it is possible that they enjoyed a certain immunity, not only from these, but from other birds of prey, on account of their presence.

The eggs, which seldom have any softer resting place than chips and stones, or the rotten wood which the woodpeckers have left them, are among the handsomest of oölogical treasures. The lime of the shell, still plastic, has been generously sprinkled with cinnamon, and a warm glow imparted to the whole. It is not improbable, however, that we see in the case of these eggs the incipient workings of nature's inexorable economy. The eggs of all hole-nesting species are either white or tend to revert to white. Now Falcons' eggs are normally very richly colored, sometimes almost solid red. Eggs of the Sparrow Hawk, however, average much lighter in coloration than those of any other American Falcon. A set, 1/5-01 in the M. C. O. collection, taken by Evan Davis near East Orange, is almost unmarked. This was taken from a deep cavity in a hollow sycamore; whereas the most heavily colored set in the collection, 10/5-12, was taken in a comparatively open situation, viz., a deserted nest of the Yellow-billed Magpie (*Pica nuttalli*) near Shandon.

We are indebted to a fellow member of the Cooper Ornithological Club, Miss Althea R. Sherman, of National, Iowa, for a model study of the nesting habits of the American Sparrow Hawk.[1] From this excellent paper we learn that eggs are deposited on alternate days, and that incubation requires 29 or 30 days. Incubation is almost wholly performed by the female, and upon her devolves the protection of the nesting site, and all immediate ministration to the young. The male bird faithfully provides food both for their young and for his mate, turning his successive catches over to the latter at an appointed rendezvous, or else meeting her in midair at some distance from the nest. Food, in the instance under observation, consisted chiefly of meadow mice, birds (fledglings for the most part), insects, and ground squirrels. Most of the prey was skinned or well plucked before being presented to the young, and rended, or not, according to their stage of development. Birds were headless, tailless, and wingless, as well as carefully plucked. Birds nesting in the immediate vicinity were not molested, and the falcons appeared to wish to live on good terms with their neighbors.

The young birds did not fight for food in the presence of their mother, but she apportioned to the females a notably larger share, and they soon manifested a fiercer disposition and dominant qualities. At the time they left the nest, 26 to 28 days after hatching, the females weighed twenty

[1] "The Auk," Vol. XXX., July, 1913, pp. 406-418.

per cent more than their brothers (using the male weight as a base of reference).

Miss Sherman's painstaking study is of exceptional value in its implied suggestion that the dominance of the female among Raptors may be due to selective feeding. Verily the hand that rocks the cradle rules the world. Brethren, we must make our peace with these ladies, or—*Quien sabe?*

The question of the Sparrow Hawk's food is one of considerable importance. That it does occasionally eat birds there can be no doubt. I have several times frightened a Sparrow Hawk from a quarry of young Meadowlarks; and once, at Goose Lake, found the Kestrel making a luncheon off an adult female Brewer Blackbird. In the latter case the head had already been eaten, with the exception of the bill. When a questing Sparrow Hawk finds a fledgling, it is likely to return and clean up the brood. Yet the preponderance of testimony is overwhelmingly in favor of the "Sparrow" Hawk. The consumption of birds seems to be largely a matter of individual taste. The toll taken is not large, and it is probable that bird-killing is indulged only at critical seasons, such as the period of maximum demand on the part of young, and the winter season when other food may be scarce. Ordinarily the smaller birds do not seem to fear the Sparrow Hawk, and they will flit about a tree which contains this watchful Falcon with perfect unconcern.

Without question, insects, such as grasshoppers, beetles, and crickets, form the chief articles of Sparverian diet; while spiders, lizards, shrews, meadow mice, and small snakes are seized as occasion offers. The ministrations of the Sparrow Hawk, the American Kestrel, are exceedingly beneficial to the farmer.

Taken in San Luis Obispo County *Photo by the Author*

SUNSET ON THE PALOPRIETA

No. 323

Audubon's Caracara

A. O. U. No. 362. **Polyborus cheriway auduboni** Cassin.

Description.—*Adults* (sexes alike): Crown, nape, and general body plumage black; foreparts, narrowly, except crown, pale ochraceous or creamy buff, immaculate anteriorly, finely barred with black in increasing abundance until complete transition is effected on back and breast; under tail-coverts tipped distally with black; basal portion of tail and concealed portions of wing-quills similarly cream-buff or dingy white, obscurely barred with black. "Bill variously pale colored; cere carmine; iris brown; feet yellow; claws black; soft parts [i. e., exposed anterior portion of face] drying to a dingy indefinable color" (Coues). Young birds resemble adults, but are brownish black, the markings lengthwise in streaks instead of bars, save on tail where conspicuously barred. Length of adult 609.6 (24.00) or less; wing up to 419.1 (16.50); tail 203.2-254 (8.00-10.00); culmen 34.3 (1.35); tarsus 91.4 (3.60).

Recognition Marks.—Gull size; contrasting black of body-color and crown with light buffy of foreparts and circular investiture of bars on breast, sides of neck, and back unmistakable. Anterior portion of head without feathers. Deportment varied and often unhawklike.

Nesting.—Not known to breed in California. *Nest:* Of sticks or twigs lined with usnea or grass, and placed indifferently in trees, sahuaros, or sturdy shrubs. *Eggs:* 2 or 3; basally buffy white or pinkish white, but usually completely buried under pigment of the richest rufous (carob brown) washing to sayal brown, russet, or walnut-brown,—the darkest of falconine eggs. Av. size 60 x 47 (2.36 x 1.85); index 78.3. *Season:* Feb. 15–April, according to altitude.

Range of *Polyborus cheriway.*—Southern portion of United States south to Guiana, Venezuela, and Ecuador.

Range of *P. c. auduboni.*—The southern border of the southwestern states from Arizona to Texas and south to Central America. Accidental in California.

Occurrence in California.—Accidental. One record: bird well observed by Prof. Harold Heath and W. W. Curtner near Monterey "in the winter of 1916."

Authorities.—**Heermann** (*Polyborus tharus*), Rep. Pac. R. R. Surv., vol. x., 1859, p. 30 (Colorado River, near Ft. Yuma); *Baird, Brewer, and Ridgway*, Hist. N. Am. Birds, vol. iii., 1874, p. 178 (syn., desc., habits, etc.; Calif. occurrence); *Heath*, Condor, vol. xxi., 1919, p. 125 (near Monterey, during February, 1916).

A MARKED CHARACTER is that of *Polyborus cheriway auduboni*, and its accidental occurrence near Monterey[1] affords us a welcome excuse to consider it as a bird of California. The Caracara is neither a hawk nor a vulture nor an eagle, although he is each by turns, and he figures in the last-named capacity upon the coat-of-arms of Mexico. Supported vaguely by a cactus, the intrepid bird is there represented as seizing a serpent, presumably a rattler, somewhere near the nape of the neck (but not too near to give the squirming reptile a sporting chance). That the

[1] Harold Heath in The Condor, Vol. XXI., May, 1919, p. 123.

Caracara is a "terror to snakes" there can be no question, nor that he is a terror to lambs in their tender youth, and a terror to humans after he has been banqueting upon the remains of a silent but unforgetable cow.

The Caracara is a comparatively active bird both on the wing and on the ground. Its wing action is rapid, but its progress is scarcely commensurate with the appearance of effort. The rather elongated tarsus fits the bird for walking, and it seems to spend a good deal of time on the ground, where it seizes beetles and lizards, as well as snakes and rodents. Dr. Merrill[1] has described its pursuit of a jack rabbit. The quarry was not secured by a stoop or pounce, as of falcon or redtail; the rabbit was simply pursued through its devious twistings and boundings until overtaken—fair sport, it must be confessed. According to the same authority, no lucky captor, whether of snake or field mouse, was left in undisturbed possession. For if one of its companions spied it, a chase and a squabble followed.

The Caracaras do not bear a good reputation with the smaller feathered fraternity. If one attempts to alight in a mesquite tree at nesting time, it is immediately set upon by the lesser fry and pestered until it is glad to escape. Once I saw a young Caracara which endeavored to stand its ground under the assaults of an irate shrike. The Buzzard was a youngster or he would have known better. His head was small; his "build" was lean, almost emaciated, "high hung," too, like a Shanghai cockerel. As often as the shrike struck, the hawk ducked his head and lurched forward upon his absurdly long shanks, and just as we looked to see him topple over, caught himself midair with a suddenly flared tail.

Under persecution, such as is the inevitable portion of every bird of prey, the Caracara has learned cunning. He is both shy and wary, and he knows the meaning of a gun all too well. Their numbers are steadily decreasing in the United States, but further south, where their services as scavengers are more highly valued, they are likely to maintain themselves for years to come.

No. 324

Osprey

A. O. U. No. 364. **Pandion haliaëtus carolinensis** (Gmelin).

Synonym.—Fish Hawk.

Description.—*Adult male:* Upperparts dark brown (with considerable variability of individual feathers as in the Golden Eagle); tip of wing lustrous black; tail

[1] Bull. Nutt. Orn. Club, Vol. VII., 1882, p. 173.

crossed by six or eight dusky bars, the alternate spaces grayish brown on the outer webs, whitish on the inner; head and neck chiefly white, the crown black or black-striped centrally; nape narrowly and cervix centrally black-striped; an irregular dusky band proceeding backward from eye; feathers of occiput loosely ruffled, or presenting a crested appearance; underparts white, sometimes rufous-spotted on breast, but usually immaculate; lining of wing mottled,—white and fuscous near edge, remainder white or buffy, dusky-barred distally; bill and claws black; cere and base of bill bluish black; feet bluish gray; iris yellow and red. *Adult female:* Similar but breast heavily marked with yellowish brown or fuscous. *Immature:* Like adult, but feathers of upper-parts bordered terminally with white or buffy. The same distinction obtains between the sexes as in case of adults. Length 533.4-635 (21.00-25.00); wing 431.8-520.7 (17.00-20.50); tail 177.8-254 (7.00-10.00); culmen 30.5-35.6 (1.20-1.40).

Recognition Marks.—Brant size; extensive white below distinctive for this group; labored flight; river-, lake-, and ocean-haunting ways.

Nesting.—*Nest:* An immense mass of sticks, broad-topped, lined centrally with bark-strips and soft materials; placed on top of trees of various heights, or on isolated rocks of rivers, etc. *Eggs:* 2 to 4; dull or buffy white, heavily spotted, blotched, or overspread with chocolate; rarely almost or quite unmarked. Av. size 62.2 x 46 (2.45 x 1.81). *Season:* May 1–20; one brood.

Range of *Pandion haliaëtus.*—Nearly cosmopolitan. Wanting only in the colder Arctic regions, the southern portion of South America, and New Zealand.

Range of *P. h. carolinensis.*—North and South America; breeds from northwestern Alaska, northwestern Mackenzie, central Keewatin, southern Ungava, and Newfoundland, south to the Gulf Coast, western Mexico, and Lower California. Winters from the southern United States south through middle America and sparingly to Peru and Paraguay.

Occurrence in California.—Fairly common during migrations, especially interiorly. Breeds sparingly upon the Santa Barbara Islands and in a few localities along the seacoast north to Humboldt Bay. Has bred also at Eagle Lake, on the Kaweah River near Woodlake, Tulare County (Tyler), and probably at Goose Lake (June, 1913). Winters very sparingly along the seacoast (records from Farallon Islands, Santa Cruz Island, Santa Barbara (March 18, 1921), and San Diego.

Authorities.—Gambel (*Pandion carolinensis*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 45 (Catalina Id., etc.); *Fisher*, Hawks and Owls of the U. S., 1893, p. 130, pl. 18, (food, etc.); *Sheldon*, Condor, vol. ix., 1907, p. 187 (Eagle Lake; desc. nests); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 69 (Calif. status); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 58 (s. Calif. ids.).

WHETHER or not fish is proper brain food depends, as some one has wittily remarked, "more upon the brain than it does upon the fish." An exclusive diet of fish has not made the Fish Hawks either brainy or valiant. We need not be troubled on the latter score, though, for in a family where prowess and tyranny are almost synonymous, it is a comfort to find birds who mind their own business and exhibit a proper humility. Ospreys are simple-hearted, honest folk, and they deserve protection, if for no better reason, simply because they are inoffensive and picturesque. The fact that these birds require a few edible fish for their

annual support has greatly preyed upon the minds of certain men who reckon their own catch by the hundred-weight; and a cruel persecution has broken out in some quarters, persecution as senseless as it is selfish. No true sportsman, however, will begrudge to this bird his hard-earned catch, taken by a plunge and strike, which is, if anything, rather more sportsmanlike than the use of line and lure.

The Osprey preys exclusively upon fish, and covers long stretches of water in its tireless search. It flies along at a height of fifty or a hundred feet above the water, and when its finny prey is sighted, pauses for a moment on hovering wings, then drops with a resounding splash, often quite disappearing beneath the water, but rising again quickly with a fish firmly secured in its talons. The bird upon rising immediately adjusts the catch, placing it head foremost, so that it will offer the least resistance to the air in flight. Not infrequently the hawk secures a fish which it is barely able to handle, and occasionally it strikes one so large that it is drawn under and drowned before it can disengage its claws.

Clear water is essential to the Osprey's success, for he must needs see and strike from afar. The bird has little use, therefore, for the silt-stained waters of the lowlands, and it avoids the storm-tossed waters of our western coast. The more placid seas which surround our southern islands, San Clemente, Catalina, and the rest, afford a congenial summer home; and a few linger here through the winter. In the interior, the Osprey is likely to show up almost anywhere during the spring migrations, especially along the north-and-south-trending valleys, such as the Sacramento, Owens River, and the Colorado. A few breed in the lower Sierran valleys, and Ospreys have been seen in summer on Goose Lake. Doubtless many of the larger lakes and rivers of California formerly boasted their local Fish Hawks, but the only remaining stronghold of this species in the interior appears to be Eagle Lake, whose comparative inaccessibility, coupled with an abundance of suitable nesting sites, has held a good population. In 1914 Milton S. Ray, visiting Eagle Lake in company with Mr. Chase Littlejohn, saw five nests, all in the tops of dead pine trees, and surmised the presence of many more.

A typical Osprey's nest is a huge aggregation of sticks, bark, and trash; and is placed either on the top of a broken pine or fir stub or else lodged on some convenient cliff or isolated spur of rock. If the rock or tree is surrounded by water, so much the better, for it assures immunity from predatory mammals, including, to some degree, their worst enemy, man. Persecution, however, sometimes drives the birds to the deep woods, miles from their fishing grounds. A normal nest is flat on top, three or four feet across, and from three to seven in depth, according to age. Within a little depression in the center of the platform, sur-

rounded by soft materials, lie two or three eggs of moderate size, rich chocolate on a tinted ground. If the female is on, the male, tired of fishing, is likely to be standing at her side. Both birds will rise upon our approach, and will poise in midair above our heads, suspicious of oölogical intent, and uttering, therefore, feeble screams, or "whistles," of protest, *ki-ik, ki-ik, ki-ik.*

Ospreys' eggs are unquestionably among the handsomest known. A particular description of their lavenders and verona browns and chocolates might excite undue envy, and I have no desire to add to the burden of the long-suffering Osprey. Oölogical depredations in the case of this species have gone quite far enough, and the aggregate of takes boasted by some eastern collectors makes the heart sick. For example, a collector having the range of the Long Island Sound region once assured me that he had robbed six hundred Ospreys' nests in his day.

The home life of the Osprey is ideal, and the nesting Osprey deserves protection, if for no better reason, because of the conspicuous devotion of the male bird to his mate and young, and because of the touching obedience of the latter. In this connection I cannot do better than quote a paragraph from Mr. Skinner's excellent account[1] in "The Condor":

"The careful training that young Ospreys receive is further shown when a nest is approached. On hearing the whistled alarm given by a parent, usually the mother, the young birds throw themselves flat on the floor of the nest, often with necks and wings outstretched. When the observer reaches the nest, no movement is to be seen: the nestlings permit one to take them up, turn them over, or place them in any position without offering any sign of life beyond the half open, staring eyes. After the nest is left the young Ospreys maintain their position until the parents have given the reassuring signal. I have seen half-grown Ospreys hold this inert posture for an hour and twenty minutes while the parents were flying about or even standing on the edge of the nest, but no motion whatever was made until the proper signal was sounded. Young Ospreys are not fast growers, but at ten days of age begin to show black on the primaries; and ten days later more distinctive markings begin to appear. From thirty-five to forty-five days after hatching they leave the nest fully feathered and strong of wing."

The American Osprey, *carolinensis*, is a geographical race of a species which enjoys a nearly cosmopolitan distribution. Unlike its sisters, *haliaëtus haliaëtus* of Europe, and *h. leucocephalus* of Australia, the American Osprey has never been known to prey upon other birds. It feeds exclusively upon fish, and enjoys an almost unexampled reputation for harmlessness among its feathered neighbors. On the Atlantic Coast the

[1] The Ospreys of the Yellowstone, by Mr. P. Skinner, Condor, Vol. XIX., July, 1917, pp. 117-121.

Purple Grackles, attracted no doubt by the surplus of fish which this doughty fisher provides, lodge their nests unrebuked in the substructure of their patrons' palace. In Washington I have found both Magpies and Western Kingbirds enjoying a like privilege.

No. 325

White-tailed Kite

A. O. U. No. 328. **Elanus axillaris majusculus** Bangs and Penard.

Synonym.—Black-shouldered Kite.

Description.—*Adult:* Above ashy blue or deep pearl-gray, paling on crown, tips of tertials, upper tail-coverts and central pair of tail-feathers; a large black patch on wing, embracing lesser and middle coverts, sooty black; forehead, sides of head, tail (except central pair of feathers) and entire underparts, pure white, or sometimes tinged with pearly-gray on breast; also a small black patch on distal portion of under wing-coverts; shafts of primaries and tail-feathers brown above, white below; tail notched for half an inch or so. Bill and claws black; cere and feet yellow. *Young:* "Marked with dusky and reddish brown; wing-feathers white-tipped; tail feathers with a subterminal ashy bar" (Coues). Length 393.7-431.8 (15.50-17.00); wing 320 (12.60); tail 183 (7.20); bill 18.6 (.73); tarsus 37.5 (1.48). Female averages larger than male.

Recognition Marks.—Crow size; easy graceful flight; light coloration, gray and white, with contrasting black on shoulder, unmistakable.

Remarks.—It is with no little hesitation that I have adopted, in departure from the usage and canons of the American Ornithologists' Union, a modification of the name proposed for the White-tailed Kite by Messrs. Bangs and Penard. Of the justice of the claim for distinction of the California bird from the Pan-American bird, *Elanus leucurus*, I am not prepared to speak. Conceding its validity, its claim to rating as a subspecies falls under the discussion following; and I have deliberately changed the name "*Elanus leucurus majusculus* Bangs and Penard" to "*Elanus axillaris majusculus* Bangs and Penard," since there is no way (by parenthesis or otherwise) by which the responsibility of "Bangs and Penard" for *axillaris* may be disclaimed, save by express mention. For according to the older and stricter interpretation, only those forms may be grouped together as subspecies between which "intergradation," or progressive shifting of characters, is known to exist. According to this interpretation, also, cognate forms whose neighborly (or shall we say cousinly?) relationships have been sundered, whether by persistent custom or by the interposition of geographical barriers, must be reckoned as full species, if their difference is to be reckoned at all. But it must be confessed that the rigid application of this rule has led us into all sorts of inconsistencies. Disguise it how we may, a name, whether binomial or trinomial, is a value judgment, and it carries with it quantitative as well as qualitative implications. But these quantitative implications we disregarded in defiance alike of our sense of fitness and convenience, when highly diversified forms, as for example, *Sphyrapicus varius* and *Sphyrapicus ruber* (i. e., *S. varius ruber* of some authorities), are yoked together as one species simply because they exhibit a perfect intergradation; while other forms differing ever so slightly, as for example, *Rallus levipes* and *Rallus*

obsoletus, are reckoned separate species, simply because of isolation, or because of the extirpation of intermediate links.

The rise and spread of world ornithology is pressing this inconsistency home and is leading to revolt. We are awakening to a knowledge of the fact that widely separated forms, forms which we had comfortably regarded as distinct species, are in reality very similar. Apart from the fact of geographical separation, their quantitative difference is as slight as that often found in contiguous subspecies. The inference, then, is plain. We have been allowing our rigid and artificial canons of nomenclature to blind us to important facts of relationship. We have strained out taxonomic gnats and swallowed phylogenetic camels. There is now manifest a frank revulsion against this sort of thing, and a tendency to assign purely quantitative values to the concepts of species and subspecies.

The case of *Elanus leucurus* (Vieillot) and *Elanus axillaris* (Latham) is a perfect case in point. The form *leucurus*, as originally characterized, is confined to the Americas; the form *axillaris* (described before *leucurus* and so taking precedence over it) is confined to the Continent of Australia. Earth's widest ocean rolls between them. And yet a candid comparison of the two forms shows a very slight *quantitative* difference. If they had been found occupying, say, East and West Australia, respectively, they would be described as *sub*-species, and their intergradation would be assumed. The name *Elanus axillaris leucurus* (for the South American bird) violates the letter of the older canon, but it recognizes a vital fact of relationship, an unquestionable fact of close phylogenetic relationship, which is all the more impressive because of a wide geographical separation between the two forms.

It is easy to predict that more or less exact quantitative values will eventually be assigned to the concepts of species and subspecies; and the necessity of recognizing mergent forms or form-groups will be met some other way.

Nesting.— *Nest:* A bulky mass of sticks and twigs more or less deeply cupped, and lined or not with grasses; placed near top of tree, preferably live oak, and well concealed. *Eggs:* 3 to 5, usually 4; white or buffy white, heavily blotched and clouded, often completely overlaid with chestnut-brown or rich dark rufous (carob brown). Av. size 42 x 33.5 (1.65 x 1.32). *Season:* March 15–April; one brood.

Range of *Elanus axillaris*. North and South America and Australia.—In North America chiefly confined to California, Texas, Oklahoma, South Carolina, and Florida; casual in the other Gulf States and north to Illinois. Winters in Florida and California and casually (?) south to Guatemala.

Range of *E. a. majusculus* (Wholly confined to California).—Resident, rare; formerly common. Found in Upper Sonoran and coastal valleys west of the Sierras from Sonoma County and Red Bluff (Tehama County) south to San Diego.

Authorities.—Gambel, Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 44 (near Monterey); *Fisher*, Hawks and Owls of the U. S., 1893, p. 23 (food); *Barlow*, Auk, vol. xiv., 1897, p. 14 (Santa Clara Co.; habits, nest and eggs, etc.); *Coues*, Auk, vol. xiv., 1897, p. 216 (nomencl.); *Bangs and Penard*, Proc. New Engl. Zool. Club, vol. vii., 1920, p. 47 (syst.; desc. of *Elanus leucurus majusculus*, type locality, San Rafael, Calif.).

RECENT ornithological literature bristles with records of occurrences of the White-tailed Kite, once upon the verge of extinction, but, now, it is believed, being slowly nursed back into life. The cause of the near tragedy, now hopefully averted, was expressed several years ago by

Dr. Grinnell:[1] "With no doubt whatever, the present rarity of this hawk in California is due to the associational preference for marshes, where its habit of flying slowly back and forth at a moderate height above the ground in the lookout for meadow mice and insects makes it an easy target for the thoughtless gunner. In my experience the average sportsman is still unenlightened enough to shoot down any sort of 'hawk' that flies his way, provided game is not at the moment expected." Yet this is the bird of which Cooper (following Heermann) could write in the Sixties:[2] "This beautiful and harmless species is quite abundant in the middle districts of California, remaining in large numbers during winter among the extensive tule marshes of the Sacramento and other valleys."

The slender, graceful proportions of this bird are not provided in order that the owner may excel in speed, for it never catches anything a-wing more important than insects, but rather that it may maintain itself aloft with ease, and prosper in the eyes of its fellows. The White-tailed Kite, although the soul of modesty in other respects, is quite aware of his skill as an acrobat and takes conscious delight in doing perfectly needless stunts for the edification and envy of the beholder. On the other hand, partly by reason of its superb equipment, its ordinary soaring or fluttering flight may appear a little labored; and when it stops suddenly midair with a great fanfare of wings, one imagines that its engine is missing or that it is going to do a tail-spin, whereas the bird only wishes to inspect a lowly crawling cricket. This Kite is by nature unsuspicious, or even confiding; but gunfire has taught it some discretion, and as often as a human appears, the bird edges away without undue evidence of alarm. When disturbed, it is likely to give vent to a peculiar penetrating cry (miscalled a whistle) *clêwk-clêwk*. The color-pattern of the bird, black and white and gray, makes it the most conspicuous of hawks; and nature never intended that hostile attention should be provoked by its innocent gambols.

White-tailed Kites are more or less gregarious, getting along quite amicably with their fellows, even in the breeding season. Their presence would be a benediction to the farmer, for their prey consists entirely of rats, snakes, gophers, mice, and any other of the gnawing gentry, besides a few frogs, crickets, and grasshoppers. If we could persuade ourselves to regard our own welfare, this altogether desirable citizen might even yet be restored to the exercise of his ancient franchise. We bird-lovers will stuff the ballot box, if need be, in his behalf.

These Kites nest at moderate heights in willow trees, or other convenient cover, in the vicinity of their chosen swamps. Mr. Lawrence

[1] Condor, Vol. XVI., p. 42.
[2] Ornithology of California, Vol. I, p. 488.

Peyton has recently reported two pairs which nested in 1915 near Sespe in Ventura County. One nest was placed eighteen and the other twenty feet up in live oak trees. Another, probably a second attempt on the part of one pair whose young had mysteriously disappeared, was found a mile away in the top of a big sycamore. Unfortunately for their race, White-tailed Kites lay most adorable eggs, quite the handsomest of any of the Raptors, and that is high tribute of praise. Basically creamy white, the surfaces are half buried, or else altogether covered with chocolate in several intensities, and each of ravishing richness. In the present precarious condition of the species, therefore, the State must appeal to the honor of oölogists that they restrain their cupidity, no less than to the gallantry of gunners that they forbear to shoot their friends.

Taken in Ventura County *Photo by the Author*

WHITE-TAILED KITE FLUSHING FROM NEST

No. 326

Marsh Hawk

A. O. U. No. 331. **Circus cyaneus hudsonius** (Linnæus).

Description.—*Adult male:* Head and neck all around, chest, and upperparts light bluish gray or ashy, the hind-head darker, with much partially concealed white, and tinged with ochraceous; five outer primaries mostly black; upper tail-coverts pure white, tail silvery gray, barred irregularly with blackish, the subterminal band largest, tipped with whitish, the inner webs whitish or rusty-tinged; remaining underparts, including under side of wing (except terminal third of primaries), white,—the belly, flanks and tibiæ sparsely spotted or barred with bright rufous or pale dusky, and the lining of the wing with a few dusky spots and bars; wings, tail, and shanks greatly lengthened; tip of wing formed by third and fourth primaries, wing when folded falling an inch or more short of tail, and sometimes not reaching to end of feet. Iris bright yellow; bill blackish; feet yellow; claws black. *Adult female:* Of different coloring; upperparts dusky brown, the head and neck streaked and the lesser wing-coverts and scapulars spotted or margined with cinnamon-rufous; longer upper tail-coverts white, the shorter ones brown tipped with rufous; tail banded, silvery gray and brownish dusky on central feathers, ochraceous tawny and blackish on remaining pairs; underparts ochraceous or buffy, streaked broadly on the breast, and narrowly on the belly with light brown or dusky. *Immature:* Similar to adult female but darker —rich chocolate-brown above, and on sides of neck and cheeks; the underparts darker, cinnamon-rufous,—the belly unmarked. Males show every gradation between immature and adult plumage, and indeed the perfect adult male plumage is rarely found. Adult male, length: 444.5-508 (17.50-20.00); wing 330.2-355.6 (13.00-14.00); tail 215.9-254 (8.50-10.00); bill from cere 16.5 (.65); tarsus 75 (2.95). Adult female, length: 482.6-609.6 (19.00-24.00); wing 355.6-406.4 (14.00-16.00); tail 241.3-266.7 (9.50-10.50); bill 19.1 (.75); tarsus 82.8 (3.26).

Recognition Marks.—Crow size; *white upper tail-coverts* make the best field mark; long tail; marsh-haunting habits.

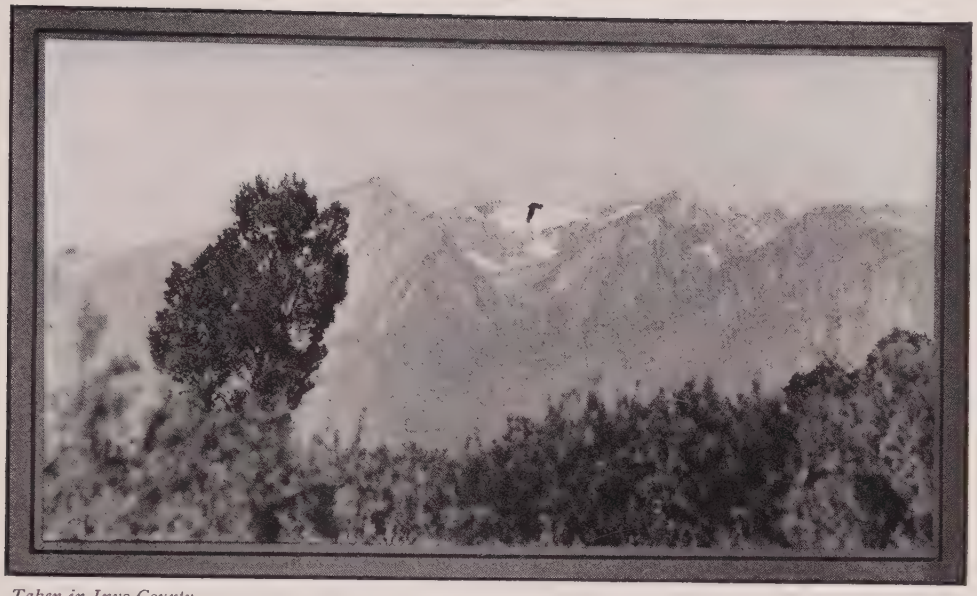
Nesting.—*Nest:* On the ground in marshes, of twigs and dry grasses or moss. *Eggs:* 3-6, 8 of record, pale bluish white, usually unmarked but sometimes spotted or blotched with pale rufous. Av. size, 45.2 x 35.6 (1.78 x 1.40). *Season:* April 10–May; one brood.

Range of *Circus cyaneus.*—Europe, Siberia, and North America; south in winter to China, India, northern Africa, West Indies, Colombia.

Range of *C. c. hudsonius.*—Chiefly North America. Breeds from northeastern Siberia, Alaska, northwestern Mackenzie, central Keewatin and Prince Edward Island south to the southern border states. Winters from British Columbia, the Ohio Valley, and New York, south to Cuba and northern South America.

Distribution in California.—Fairly common winter visitor at lower levels throughout the State. Breeds commonly east of the Sierras south at least to Owens Valley; and sparingly west of the Sierras at various valley points outside of the fog belt, and south to San Diego.

Authorities.—Gambel (*Circus hudsonius*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1847, p. 28 (Calif.); *Shufeldt,* Bull. Nutt. Orn. Club, vol. vi., 1881, p. 197 (anatomy); *Seton,* Auk, vol. ii., 1885, p. 22; *Fisher,* Hawks and Owls of the U. S., 1893, p.26, pl. 3 (food); *Chandler,* Univ. Calif. Publ. Zool., vol. xi., 1914, p. 329, pls.



Taken in Inyo County *Photo by the Author*

A ROMANTIC SETTING

THE MARSH IS IN OWENS VALLEY, AND THE SNOW-FIELD WHICH OUTLINES THE HAWK HAS AN ELEVATION OF SOME 12,000 FEET

HUMILITY is the leading characteristic of this "ignoble" bird of prey, whether we regard its chosen paths, its spirit, or the nature of its quarry. Preëminently a bird of the meadows and marshes, it usually avoids the woods entirely, and is to be seen coursing over the grass and weed tops with an easy gliding flight. Since it flies at such a low elevation as neither to see nor be seen, over the limits of an entire field, it oftenest moves in a huge zigzag course, quartering its territory like a hunting-dog. Now and then the bird pauses and hovers to make a more careful examination of a suspect, or drops suddenly into the grass, seizing a mole or cricket and retiring to a convenient spot—a fence-post or a grassy knoll—to devour its catch.

The food of the Marsh Hawk consists almost entirely of meadow mice, young rabbits, ground squirrels, garter-snakes, frogs, lizards, grasshoppers and the like. In hunting for ground squirrels the bird flies higher and secures its prey by a headlong dash, pinning the victim to the ground and making sure of the kill before rising. So great is its fondness for mice that one may, with sufficient cover for concealment, succeed in calling the hawk very close by imitating the squeak of a mouse in distress.

Its fondness for the pestilential ground squirrel is so undisguised that the State could well afford to establish a Marsh Hawk hatchery, or to maintain a warden service, to see that the incorrigible hawk-killers are

MARSH HAWK

brought to book. Authorities differ greatly as to the amount of destruction occasioned by this bird to other bird life. I have been a rather close observer of this species, and in only one instance have I ever seen it capture a bird. That bird, a Redwing, was voluntarily released. Yet I have frequently remarked that the lesser bird world is always greatly perturbed over the appearance of this Marsh Hawk. Pipits and Horned Larks and Meadowlarks will flee from its presence with distressed cries, insomuch that I have wondered whether they recognized a bad actor of former experience, or whether they mistake this modest mouser for something more dangerous. Or, again, when kingbirds and blackbirds persist in mobbing the Marsh Hawk, as they invariably do in the vicinity of its nesting home, one cannot be sure whether they are trying to avenge wrongs previously suffered, or only bullying an antagonist whom they do not fear. Major Brooks, on the other hand, assures me that he has seen the Marsh Hawk capture birds on many occasions, and he derides the claims which we make on behalf of the bird's exemption. It is known that the Harrier will occasionally pick up a wounded quail or a duck (and who wouldn't?) but he is not seriously reckoned at any southern station as a menace to game or poultry.

This hawk is one of the most unwary, as it is the most useful of its race. It is no achievement to assassinate one from behind the cover of a convenient haycock, or even to arrest its easy flight in an open field. The tillers of the soil have done nothing more foolish or more prejudicial to

their own interests than to allow and encourage the slaughter of this innocent and highly useful member of the agrarian police. A farmer would have as just cause to be indignant at some interloper who shoots a Marsh Hawk on his premises, as at another who tramples down his wheat or breaks up his gopher traps. Given adequate protection to the Marsh Hawk, the Swainson and the Red-tailed Hawks, and the Burrowing Owl, the "squirrel" problem would scarcely trouble the California rancher.

As the breeding season approaches, the male Harrier, feeling the impulse of the ennobling passion, mounts aloft and performs some astonishing aërial evolutions for the delectation of his mate. He soars about at a great height, screaming like a Falcon; or he suddenly lets go and comes tumbling out of space head over heels, only to pull up at a safe distance from the ground and listen to the admiring shrieks of his spouse. "At other times," says Mr. Ernest E. Thompson, "he flies across the marsh in a course which would outline a gigantic saw, each of the descending parts done in a somersault, and accompanied by the screeching notes which form the only love song within the range of his limited vocal powers." This operation is not necessary in order to win his mate, for he is supposed to have won her "for keeps"; but, after all, it is well enough to remind her

Taken in Washington *Photo by the Author*

NEST AND EGGS OF THE MARSH HAWK

Taken in San Bernardino County *Photo by Pierce*

"READY TO FIGHT OR READY TO DIE"
YOUNG BIRDS USUALLY TAKE LIFE VERY SERIOUSLY

now and then that he is a very good fellow—for she is a size larger than he and a little exacting in matters of courtesy.

Not only are the Marsh Hawks wedded for life, but the male is very much devoted to his family. He assists in nest-building, shares the duty of incubation, and is assiduous in providing for his brooding mate. A nesting site is selected late in March, in April, or in May, according to latitude, customarily in the tall grass adjoining a swamp, although latterly alfalfa fields have come to be great favorites. If the ground is wet, sticks are first laid down; but otherwise only grass, dead leaves, and weed-stems, with a little hair and moss or feathers, are used to build up a low platform, broad and slightly hollowed on top. Here four or five eggs, pale bluish green and commonly unmarked, are laid; but six is not unusual, and two sets of eight are on record, of which one, by George Willett, is from this State.

Fearing alike the blundering step and the wilful marauder, Marsh Hawks are most zealous in defense of their nests.[1] The male bird maintains a sharp lookout in spite of his venatorial duties, and the approach

[1] Pacific Coast Avifauna. No. 7, p. 46.

of a stranger is marked by uneasy cries, *eh - eh - eh - eh - eh.* When the female is flushed, both birds will circle about with incessant protest, and will even dash at the head of the investigator in most reckless fashion. Repeated visits will not allay their anxiety, and a favorite enemy will be decried, as Saunders has reminded us,[1] a half mile from home.

Incubation is accomplished in about 31 days, or if it has commenced with the laying of the first egg, as is often the case, then the last egg may not hatch for a week longer. While the female is brooding the young, she is frequently fed by the male from a considerable height. Dr. Lynds Jones relates one such instance in which an element of sportiveness appeared to enter in: "Once during the breeding season I saw a male catch a large garter snake and fly up with it several hundred feet, then drop it to the female who just then came flying along near the ground. She caught it and carried it to the nest, followed by the male."

The young, after leaving the nest, hunt for several months with their parents, and the last and costliest lesson which they learn is fear of man. If these most excellent mousers had half the gratitude shown to them which we manifest toward cats, they might be abundant where they are now rare. Without question the past thirty years have shown a marked decrease in the abundance of this species in the West. The Marsh Hawk is partially and irregularly migratory, but it is now seldom seen hereabouts save during migrations, whereas Cooper reported it[2] as "one of the most abundant of hawks."

No. 327

Sharp-shinned Hawk

A. O. U. No. 332. **Accipiter velox** (Wilson).

Synonyms.—"Sparrow" Hawk. Bird Hawk.

Description.—*Adult:* Above slaty gray, dark plumbeous, or chocolate-brown, with a glaucous cast, darker but not black on head; occipital feathers, scapulars, and inner quills with concealed white at base; primaries banded with two shades of fuscous above, contrasting dusky and whitish below; tail, nearly square, slightly emarginate, crossed by five dusky bands, and narrowly whitish at tip, the basal band concealed and nearly obsolete; auriculars rusty, with black shaft-lines; throat whitish or pale buffy with blackish shafts; remaining underparts white, heavily barred on breast, belly, sides, axillaries, and shanks with pale cinnamon-rufous—quite variable, clay-color, tawny-olive or snuff-brown—feathers of breast with blackish shaft-lines; lining of wings rusty-tinged, finely and irregularly barred with dusky; crissum unmarked,

[1] Condor, Vol. XV., May, 1913, p. 100.
[2] Geological Survey of California, Vol. I., Ornithology (1870), p. 491.

or merely touched with rufous. Iris, cere, and feet yellow; bill and claws blackish. *Females* are perhaps less blue above, and duller or paler below. *Immature:* Above dusky brown margined with rufous (heavily on fore-crown and cervix, lightly or not at all elsewhere), concealed white cropping out in streaks on forehead and hind-neck, and in spots on scapulars, etc.; below streaked and spotted instead of barred with pale brown or cinnamon, with dusky shaft-lines, narrowly on cheeks and throat, more broadly on breast and sides,—markings pandurate on sides of breast, cordate, tear-shaped, or various, below, sometimes transverse on flanks and shanks. Between this and the typical adult plumage every gradation exists. Rather variable in size,—adult male: length 254-304.8 (10.00-12.00); wing 167.6 (6.60); tail 152.4 (6.00); bill from nostril 10.2 (.40). Adult female: length 317.5-362 (12.50-14.25); wing 203.2 (8.00); tail 184.2 (7.25).

Recognition Marks.—Little hawk size; adult transversely barred, young heavily streaked below, often giving the impression of a red-breasted bird; barring of under wing surface conspicuous in flight; the distinction between the breast patterns of adults and young must be borne clearly in mind to avoid confusion. Like next species, but considerably smaller, although female Sharpshins are as large as small male Coopers; tail not rounded.

Nesting.—*Nest:* Of sticks, twigs and dried leaves; in trees at any height, or in hollow trees and cliff crannies; sometimes old nest of magpie or crow is used. *Eggs:* 4 or 5; bluish-, greenish-, or grayish-white, lightly or heavily spotted, blotched, marbled, or clouded with rich rufous (carob-brown). Av. size 37 x 30 (1.45 x 1.18). *Season:* May; one brood.

General Range.—North America. Breeds practically throughout the United States and north to Keewatin and northwestern Alaska. Winters from the central states and British Columbia south to Panama.

Distribution in California.—Common winter resident practically throughout the State below Boreal zone. Not common summer resident in Transition zone coastwise, at least as far as Monterey County and in the mountains to the San Jacintos (Tahquitz Valley, June 7, 1913).

Authorities.—Gambel (*Astur fuscus*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 46; *Fisher*, Hawks and Owls of the U. S., 1893, p. 32, pl. 4 (food); *Miller*, Univ. Calif. Publ. Geol., vol. vii., 1912, p. 73 (fossil); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 46 (s. Calif. occurrence; San Bernardino Mts.; breeding); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 40 (San Joaquin Valley; habits); *Rust*, Condor, vol. xvi., 1914, p. 14, figs. (desc. and photos of nest, eggs and young; habits, etc.; Idaho).

MILLENNIUMS of agonized terror voice themselves afresh in the pitiful cries which break out among the lesser fowl, especially the Linnets and the Bush-Tits, whenever the Sharp-shin is astir. Many birds dive instantly for cover, but members of these two species, whose sole dependence seems to be in numbers, are thrown into a helpless panic. A wave of vocal despair sweeps the woodland, and each individual is seen to be fluttering abjectly while it utters those chittering distress notes. Not the devil himself, appearing suddenly in a congregation of worshippers, could occasion such consternation as comes to the little feathered folk cringing before the expected blow. The blow must fall and some one must die.

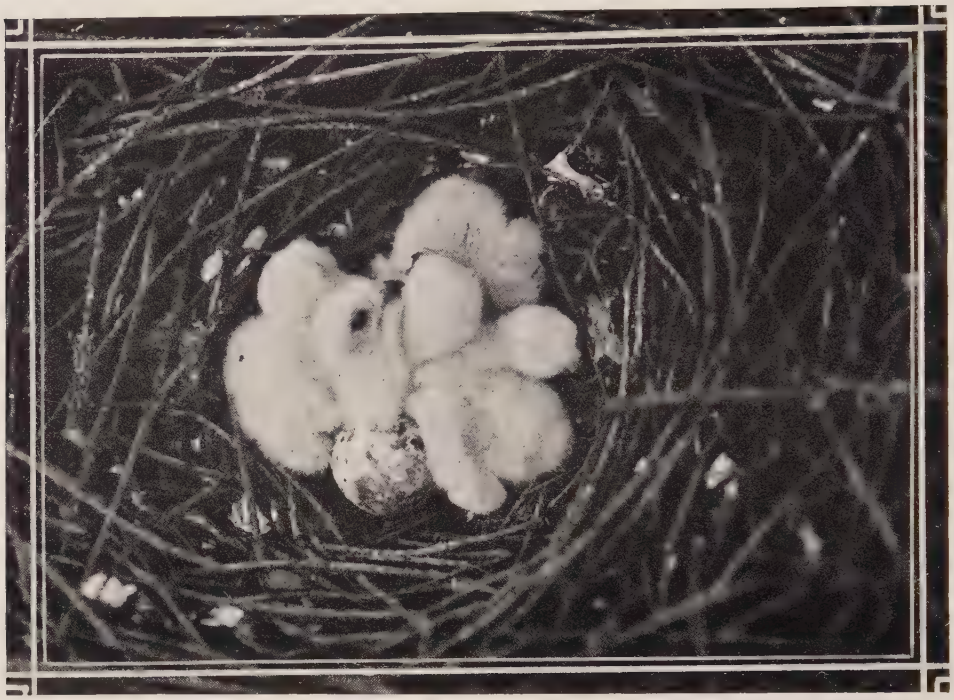
Aie! Aie! But when the grim destroyer has made selection, or passed on, how swift the recovery! The sun is still shining, buds are sweet, and grubs are juicy. What, ho! birdlings! "On with the dance. Let joy be unconfined!"

The Hawks proper, of which this bird is a typical representative, may lack the spectacular wing-feats and noble bearing of the Falcons, but they are still very bold and rapacious birds. Indeed, it would be hard to picture

Taken in Idaho *Photo by H. J. Rust*

AMONG THE HANDSOMEST OF EGGS

a more alert and blood-thirsty creature than this sharp-taloned little hawk as it scours the brush-patches or open fields in search of feathered prey. The flight of the Sharp-shin is at times as swift as an arrow and as direct, but it is skilled in doubling and twisting; and no bird, save a swift or a swallow, can escape it in the open. Coming upon a flock of blackbirds, the hawk makes instant choice of a victim, and pounces like a flash upon it, either snatching it in midair, or bearing it to the ground and transfixing it with claws which pierce the vitals and cause instant death. If unsuccessful in its open attack, the hawk will either pursue through



Taken in Idaho *Photo by Rust*

THE AGE OF INNOCENCE

the mazes of brush or weed, or else retire quickly to thick foliage, there to await with the patience of a statue the first stirrings of the frightened quarry. The prey, when caught, is held at "arm's length" until quite dead, and then either eaten on the spot or else carried up to some elevated perch.

Sharp-shinned Hawks occur in very limited numbers in spring and summer at Transition or Canadian levels throughout the State, or at least as far south as the San Jacinto Mountains. They are, however, much more numerous in winter and during migrations. They probably indulge as definite a predilection for a winter as for their summer home. For seven winters past (the period of my residence in California), I have seen a Sharp-shinned Hawk pass over my yard in a westerly direction at a very early hour in the morning. The bird must roost somewhere in the immediate neighborhood, yet I have never seen him at any other time or place, save once when he tried to get a "pet" (but unconfined) Hermit Thrush. There is something gruesome, therefore, about the bird's secretiveness, about his ability to pursue a rapacious calling unhindered by the guns of "Civilization." Curiosity, however, sometimes gets the better of a

Sharp-shin. An unwonted stir in the brush suggests to him that birds are about and he hurries forward. Occasionally, then, the observer gets a perfect view of the Sharp-shin as it comes unexpectedly into sight over some woodland opening, and takes a curious turn about overhead, displaying as it sails the finely barred pattern of its wing-linings, and its long square-ended tail; but oftener, the bird is aware of your presence in advance, and keeps warily out of range. It is equally at home in the open or in the woodland fastnesses, and I have on several occasions been nearly flown into by a Sharp-shin intent upon following some woodland path. Recovery, however, is instant, and the bird does not tarry to say "beg pardon." It is sometimes felt, but rarely seen, in the neighborhood of the poultry house, and it is quite equal to carrying off a chick or a young pullet.

A classic painting, doubtless authoritative, depicts a Sharp-shin with talons deep sunk in a dying Flicker, but I was much instructed in noting, last fall, October 15th it was, a desperate struggle which was being enacted on a boulder-strewn and oak-sprinkled hillside near Santa Barbara. The place was full of Red-shafted Flickers (*Colaptes cafer collaris*), recently arrived, and a party of Sharp-shinned Hawks, also newcomers, were doing their aceipitrine utmost to catch one of them. The Flickers screamed

Taken in Idaho *Photo by Rust*

THE PIN-FEATHER STAGE

THE HOBBLEDEHOY STAGE

Taken in Idaho
Photo by Rust

with terror in a peculiar rattling fashion as they fled, but they always succeeded in evading the stroke. The Hawks were very persistent, but they were always unsuccessful (much to our relief), and they gave voice, in turn, to their recurrent disappointments in puzzled squeaking tones. We were as greatly surprised as the Hawks appeared to be, that they could not make connections with such easy-looking quarry.

It is idle to speak a good word for this gory little hawk; he is the raw head and bloody bones of Bird-dom. Rodents and insects are eaten only occasionally, while birds of every size up to pigeons and quails are its regular diet. According to Dr. Fisher, of 107 stomachs examined containing food, 6 held poultry or game-birds, "99, other birds; 6, mice; 5, insects."

Since these birds bear such a character, the successful oölogist may be allowed to point with pride to the elegant series of Sharp-shins' eggs which usually adorns his collection. A set varies in number from three to seven, but four or five is customary. They are among the handsomest of all eggs, not only because of their contrasting hues, but because of their wide variation. The ground-color is always a delicate greenish white, but the markings are of lilac, brown, green, or red, and vary in size from a pin-point to irregular blotches covering half the egg.

The nest is usually placed in some secluded situation in an evergreen close to the trunk of the tree, and at a height from the ground of from

twenty to fifty feet. Occasionally an old squirrel nest is utilized, though oftener the birds build their own nest, of small sticks neatly lined with smaller twigs, and sometimes of so loose a construction that light appears through any part of it when viewed from below.

Both birds assist in the duties of incubation, and they are unusually brave in the matter of sticking to the nest under fire. No amount of rapping on the base of the tree will flush the sitting bird, and it will not often leave until the nest is almost reached. When disturbed both birds will make a high-spirited defense; and the female, who is, of course, the larger, will dart at the climber so boldly as occasionally to brush him with her wings. A wrathful *yip, yip, yip, yip, yip* is likely to accompany this attack; and the notes serve again to remind one of the bird's affinity to the Cooper Hawk.

Quite apart from any possibility of nest defense—it was in open, hilly country near Cholame—I once heard a Sharp-shin tirade of rather startling proportions. The bird was in full pursuit of a Pacific Horned Owl and it shouted *Ricky, ticky, ticky, ticky, ticky*, with an animation which was both thrilling and terrifying,—the same note, I should judge, as would have been used by a bird in defense of its young. The hawk dived repeatedly at the owl, as the latter wended her virtuous way to her own nest, and although she took good care not to strike, she upbraided her in language which quivered with passion. Perhaps the owl had been naughty, but what arrant hypocrisy in a Sharp-shin!

No. 328

Cooper's Hawk

A. O. U. No. 333. **Accipiter cooperi cooperi** (Bonaparte).

Synonym.—Chicken Hawk.

Description.—*Adult:* Similar to preceding species, but decidedly larger; the top of head deeper slate, or blackish, in sharper contrast to remaining upperparts, which are lighter than in *velox;* females average browner, and there is in both sexes a more marked tendency to outcropping of basal white on hind-neck; the tail slightly or considerably rounded; sides of breast often tinged with bluish gray. *Immature:* Similar to that of preceding species; more extensively tawny on crown and cervix; more outcropping of basal white on hind-neck and scapulars; chest often tinged with cinnamon-rufous; streaking of underparts less abundant, more sharply defined, and of darker shades; belly and sometimes throat immaculate, or tending to become so. Differences between adult and young rather more clearly marked than in *A. velox.* Very variable in size. Adult male, length: 355.5-431.8 (14.00-17.00); wing 215.9-241.3 (8.50-9.50); 177.8-215.9 (7.00-8.50); bill from cere 15.2-16.5 (.60-.65). Adult

female, length: 457.2-508 (18.00-20.00); wing 247.6-279.4 (9.75-11.00); tail 215.9-254 (8.50-10.00); bill from cere 17.8-20.3 (.70-.80).

Recognition Marks.—Crow size; adult heavily barred below with cinnamon-rufous; young heavily striped on breast and sides with dark brown or dusky; top of head blackish; tail *long, rounded.* Almost always distinguishable from *A. velox* by greater size.

Nesting.—*Nest:* Of sticks, with scant lining of green leaves, high in trees. Sometimes a deserted Crow's nest is used. *Eggs:* 3 to 6; pale bluish white, sometimes spotted with light brown; subspherical. Av. size 48.8 x 38.6 (1.92 x 1.52). *Season:* April 20–May; one brood.

Range of *Accipiter cooperi.*—North America. Breeds from Mexico and southern border of the United States north to the southern Canadian provinces and southern Keewatin. Winters on the Pacific Coast from British Columbia and from the central eastern states south to Costa Rica.

Range of *A. c. cooperi.*—The eastern and northern portion of the range above defined—line of demarcation from *A. c. mexicanus* undetermined.

Distribution in California.—Common resident at all levels up into Transition. Presumably confined to region north of Tehachipe. More in evidence in winter, and numbers possibly augmented from the North.

Authorities.—Gambel (*Astur cooperii*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 46 (Calif.); *Fisher*, Hawks and Owls of the U. S., 1893, p. 38, pl. 5 (food); *Grinnell*, Univ. Calif. Publ. Zool., vol. v., 1908, p. 57 (San Bernardino Mts.; desc. nest and eggs; habits); *ibid.*, vol. xii., 1914, p. 124 (Colorado Valley; desc. nest and eggs, etc.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 46 (s. Calif.; occurrence, nesting dates, etc.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 54 (occurrence on Santa Cruz Id.).

No. 328a Mexican Cooper Hawk

A. O. U. No. 333, part. **Accipiter cooperi mexicanus** Swainson.

Description.—Similar to *A. c. cooperi*, but averaging smaller, the wing averaging about 6 mm. shorter than that of *cooperi.* Also "female with markings of lower parts denser and rather deeper in color; more rufous on thighs" (Kirke Swann).

Nesting.—As in *A. c. cooperi. Eggs:* Averaging much smaller. Av. of 21 specimens from southern California: 46.2 x 36.6 (1.82 x 1.44).

Remarks.—Dr. Grinnell in the Colorado River Report [U. of C. Pub. Zool., vol. 12, no. 4 (1914), pp. 124, 125] was perhaps the first to call our attention to the small size of Cooper Hawks' eggs taken in the Southwest. Having the curiosity to check up on this point, I find that 143 eggs from: Ohio (Fordyce), New York (Rathbun), Pennsylvania (Burns), and Massachusetts (Bent), average mm. 49.02 x 38.82; while 21 eggs from southern California average mm. 46.2 x 36.6. This difference may not appeal to the layman as being very significant; but by application of the well-known formula, $\frac{4\pi ab^2}{3}$ (for determining the cubical content of a prolate spheroid, which, for practical purposes, an egg is assumed to be), we discover an average difference *in bulk*, or weight, of *nineteen per cent* of the smaller. Whether, indeed, this indubitable reduction in the size of eggs from the Southwest may be correlated with the alleged smaller dimensions of *Accipiter cooperi mexicanus*, remains to be seen; but the point

is deemed of sufficient importance to be recorded here. The author ventures, also, to advance the claim that an average difference in the size of eggs is just as important as a diagnostic distinction in the evaluation of subspecies, as is a difference in the length of bill or wing. Indeed, it is to be suspected that certain oölogical differences are both more profound and more ancient than many superficial marks upon which taxonomists rely.

Range of *A. c. mexicanus.*—Resident in the Southwestern States and in Mexico.

Distribution in California.—Presumed to be the form occupying the southern portion of the State, perhaps the region south of the Tehachipe, and the valley of the Colorado. Not yet distinguished from *A. c. cooperi.*

A DARK SHADOW, as of a bird, flashed across my north study window, and, surmising from the angle of descent that the bird might have alighted in the sharp angle of the fence to westward, I peered suddenly out of the west window. There, upon the ground, sat the bird, a wicked-looking Cooper Hawk, back to, and eyeing me maliciously over his shoulder. He did not seem to be in any hurry, nor did I think to inquire the nature of his business, for he fairly transfixed me with that gleaming red eye. Presently, observing how much advantage I should have of the bird if I should rush him, I bethought myself of the possibility of bolting out of the north window at him. The bird appeared to divine my thoughts, for he hopped forward—rather awkwardly I considered—and pressed between the palings of the high picket fence which separates my plot from neighbor Hoover's pasture. Here he sat with free wing-room, but awkwardly still. Then seeing the jig was up, anyway, I pounded on the window, whereupon the hawk took heavily to wing. Judge of my astonishment, however, when I saw that he was bearing off a large quarry, presumably a Valley Quail! There he had been right before me, back on, to be sure, within 12 feet, and in the very act of setting his talons more deeply into a prostrate victim. Yet so great was the power of that evil eye, I had never guessed the mischief afoot.

The aperture through which the hawk had forced himself so neatly, together with his unsuspected burden, proved to be exactly two and three-sixteenth inches wide without any lateral give. Efficiency as well as ruthlessness belongs to the Cooper Hawk.

Next after the American Kestrel (*Cerchneis sparverius sparverius*), the Cooper Hawk is the most abundant and the best distributed Hawk in California. This does not necessarily imply that the bird is most in evidence, for it is wary and furtive to a degree, insomuch that it is able to maintain itself almost unnoticed in some sections where gun-fire is unusually vigilant. Where not persecuted, however, it is possessed of a lively curiosity, and will appear unexpectedly at one's elbow, as though desiring to profit by any woodland commotion likely to set the little birds

astir. It is thus, no doubt, that it has learned to dance attendance upon deer or cougar thrusting through the brush.

One never gets a clearer insight into the possibilities of cruel rapacity than when a Cooper Hawk comes dashing up into a thicket where you have been ogling Sparrows, and baffled of his victim, stands for a moment panting in his rage, and flashing malevolence from a blood-red eye. It is as though an emissary of the nether world had broken from cover; and one feels all the virtue of a just cause in putting him to death.

Birds form eighty per cent of Cooper Hawk's food, and young chickens are counted in whenever occasion offers. Game birds are often captured, for the Cooper Hawk is a conscienceless brigand; but when the birds are scarce he descends to rabbits, squirrels, mice, grasshoppers, crickets, and similar small quarry.

So quick, as well as stealthy, is the bird in action that in nine cases out of ten it is the Cooper Hawk who gets the bird, and the unwary Buteo who gets the shot. His lurking presence contributes more than any other factor to the deadly hawk-fear which occupies the background of the bird psychology. When he has recently shown himself, the bird world gets panicky like a spirited horse. After that, every flying shape is a hawk and the signal for a scramble to shelter. I shall never forget how a company of ducks, chiefly Cinnamon Teals, on Laguna Blanca, were thrown into the wildest confusion by the sudden arrival of a Great Blue Heron. "My! What a fright you gave me," gabbled a dozen ducks, as they checked their mad effort and settled back to puddling. A moment later the Cooper Hawk did appear, and a watchful Killdeer, who saw him first, set up a sharp *tee dee dee*, which put the ducks to rout and nearly upset the heron. The ducks, forty of them, now dashed into the nearest clump of tules, and the heron, seeing that the fishing was spoiled anyhow, took himself off grumbling.

It is both amusing and amazing that our Dr. Cooper, writing on Californian ornithology, could have said of the Cooper Hawk:[1] "Its nest and eggs have not yet been described." It is, perhaps, not less amazing that Dr. Baird, who edited the Cooper manuscript in 1870, should not have been able to correct him. Whatever may have been the cause of this early oversight, the nesting of the Cooper Hawk is a commonplace of to-day.

Having chosen a nesting site, the Cooper Hawk becomes quite attached to the locality; and if undisturbed will return year after year. He haunts the vicinity like an unquiet ghost, and may be heard oftener than seen, voicing his unrest in querulous notes, *kek*, *kek*, *kek*, *kek*, *kek*, *kek*, *kek*, *kek*. Sometimes curiosity gets the better of caution and he throws a few circles in the open, swapping confidences, as it were, with

[1] Geological Survey of California, Vol. I., Ornithology, p. 465.

the birdman; and in return for the few sharp glances he bends downward, affords a full view of his short, rounded wings and his long, rounded tail. One is impressed rather with the bird's ease and nonchalance than with its swiftness in flight; but it is a master at checking and tacking, so that few of the smaller birds are a match for it in the open air, and not all of them in the mazes of the forest, which the hawk threads relentlessly.

In nesting, the bird sometimes avails itself of an old crow's nest, taking pains to fill up the nesting hollow with twigs, and adding a few twigs yearly in a desultory way. Oftener, however, the bird is his own architect—and contractor. He, or he and she, construct a very substantial platform of slender twigs, lined, or at least marked, with some sort of greenery. This is placed at any height, but usually, if the situation allows, well up. Alders, willows, oaks, sycamores, any tree that offers will do, so the site be secluded and the surrounding cover as dense as possible. In the evergreen stretch, young fir trees are almost invariably utilized, and nests are placed at a height of 60 or 80 feet.

Nesting is in April or May, according to altitude, and second sets may or may not be laid in June. The eggs, three or four, or, rarely, five in number (in the West), may be conveniently described as "hawk-egg color,"—chalky white with a bluish tinge, too subtle for precise nomenclature, unmarked, or rarely, spotted and blotched with cinnamon or sayal brown. The incubation period is said by Major Bendire to be 24 days (it is probably much longer). The parents are aggressive to the point of offering personal violence, or else wary to the point of punctilious absence—according to the "discipline" they have received. The successful rearing of a family of four Cooper Hawks, to speak only of the month or thereabouts which they spend in the nest, costs the bird world approximately 750 lives. A year's board-and-keep for a single Cooper Hawk represents the tidy sum of 2920 sparrows, not to mention much other refreshment. If we allow a single bird per *section* in California, assigning thus 72 square miles on the average for the support of a single pair of Cooper Hawks, we shall have an annual meat bill for *Accipiter cooperi* of 12,652,360 bird units. A rather expensive boarder!

The Cooper Hawk population of California is undoubtedly augmented in winter by accessions from the North, and the lowlands receive correspondingly the discharge of the upper levels. Yet it is quite probable that the lowland population is about stationary.

Regrettably, neither time nor space permit me to expand the claim that the Cooper Hawks of southern California belong to a southern race, *A. c. mexicanus*. Suffice to say that the evidence of the egg eloquently supports this view, for southern-taken eggs average decidedly smaller than those taken further north.

No. 329

Goshawk

No. 329a American Goshawk

A. O. U. No. 334. **Astur gentilis atricapillus** (Wilson).

Description.—*Adult:* Similar to *A. g. striatulus*, but less heavily marked below and the markings paler,—never blended blue-gray; upperparts not so dark, slate-gray. *Immature:* Brownish black of back and striping of underparts lighter in tone than in *striatulus*.

Nesting.—As in next form. Does not breed in California.

Range of *Astur gentilis.*—Central northern portion of the Northern Hemisphere, south in winter to North Africa, Thibet, and Mexico.

Range of *A. g. atricapillus.*—North America, except the Pacific Coast district. Breeds from the limit of trees south to Michigan and northern New England and in the mountains to Pennsylvania and New Mexico. Winters from Alaska and the southern Canadian provinces south to northern Mexico, the northern portion of the Ohio Valley, and Virginia.

Occurrence in California.—Probably not common winter visitant. A notable invasion from the North in the fall and winter of 1916. Many records.

Authorities.—Grinnell, Condor, vol. xix., 1917, p. 70 (winter vis.; specimens from various localities; crit.; color of "soft parts"; meas.; etc.); *Thompson,* Auk, vol. xiv., 1897, p. 395, pl. ("directive" markings in hawks and owls).

No. 329b Western Goshawk

A. O. U. No. 334a. **Astur gentilis striatulus** Ridgway.

Synonyms.—Goose Hawk. Blue Hen Hawk. Blue Darter.

Description.—*Adult:* Above dark plumbeous to sooty blackish; with darker shaft-lines; darker, almost black on head; white lines over and behind eye loosely connected by ill-concealed basal white of cervical feathers; auriculars blackish; tail with four dusky bands, plain, or almost obsolete; inner webs of wing-quills mottled,—dusky and whitish; entire underparts white, finely and heavily marbled with slaty gray, in fine wavy or zigzag lines, sometimes so closely as to appear almost uniform blue-gray, the markings falling into fine bars on flanks and tibiæ, with sharply defined blackish shaft-lines on throat and breast. Bill dark blue; iris light yellow; feet yellow, claws black. *Immature:* Following the *Accipiter* fashion; above dark brown, spotted with buff and whitish and margined with rusty; tail with narrow white tip and four distinct dusky bands; below whitish to strong ochraceous-buffy, elongate-spotted or striped with dark brown or blackish, the markings guttate on belly, broader, on sides and flanks. Adult male, length about 558.8 (22.00); wing 304.8-342.9 (12.00-13.50); tail 241.3-266.7 (9.50-10.50); bill from nostril 19.1 (.75). Adult female, length about 609.6 (24.00); wing 336.6-362 (13.25-14.25); tail 279.4-317.5 (11.00-12.50).

Recognition Marks.—Crow to brant size; adult dark plumbeous above, white, finely mottled with slaty gray below; rather short, rounded wings; white line over eye; *tail a foot long.*

Nesting.— *Nest:* High in trees, usually coniferous; of sticks, twigs and grass, lined with bark-strips and grass. *Eggs:* 2 to 5; white or bluish white, sometimes faintly marked with pale brown. Av. size 58.9 x 45.5 (2.32 x 1.79). *Season:* April 10–May 20; one brood.

Range of *A. g. striatulus.*—Pacific Coast region of America, breeding from Cook Inlet, Alaska, south to southern Sierras; wintering south to California and east to Colorado.

Distribution in California.—Rare summer resident in the Boreal zone from Mt. Shasta and the Warners south along the Sierra Nevada to about Latitude 36° 30′. Somewhat more common in winter and at lower levels, especially northerly. Recorded south to San Diego (Lower Otay Reservoir, Stephens).

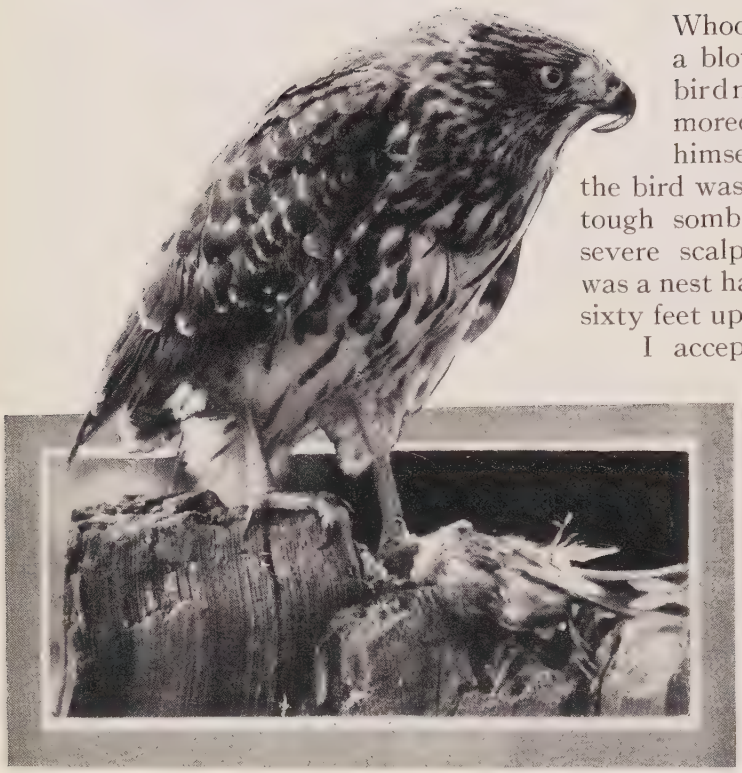
Authorities.—**Newberry** (*Astur atricapillus*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 74 (San Francisco); *Ray*, Auk, vol. xx., 1903, p. 138 (Pyramid Peak, June and July); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 64 (occurrence in Calif.).

Taken in Fresno County *Photo by the Author*

THE GORGE OF DESPAIR

THE GOSHAWK COURTS THE WILDEST SETTING

A MILD experience of the feelings of a chicken befell my partner while we were camped near a trail in the northern Cascades. It was late in June and the ornithologist was not aware that a certain stretch of woods which the trail cleft belonged to a highly virtuous pair of Goshawks, until



Taken near Spokane *Photo by W. H. Wright*

AN INTERRUPTED MEAL
THE YOUNG GOSHAWK HAS CAPTURED A ROBIN

Whoof! Biff! the blue terror struck a blow from behind and sent the birdman sprawling. He had, moreover, quick need to defend himself with sticks and stones, for the bird was back again in a trice, and a tough sombrero alone saved him from severe scalp wounds. Of course there was a nest hard by, and we found it, some sixty feet up, in a dense stand of fir trees.

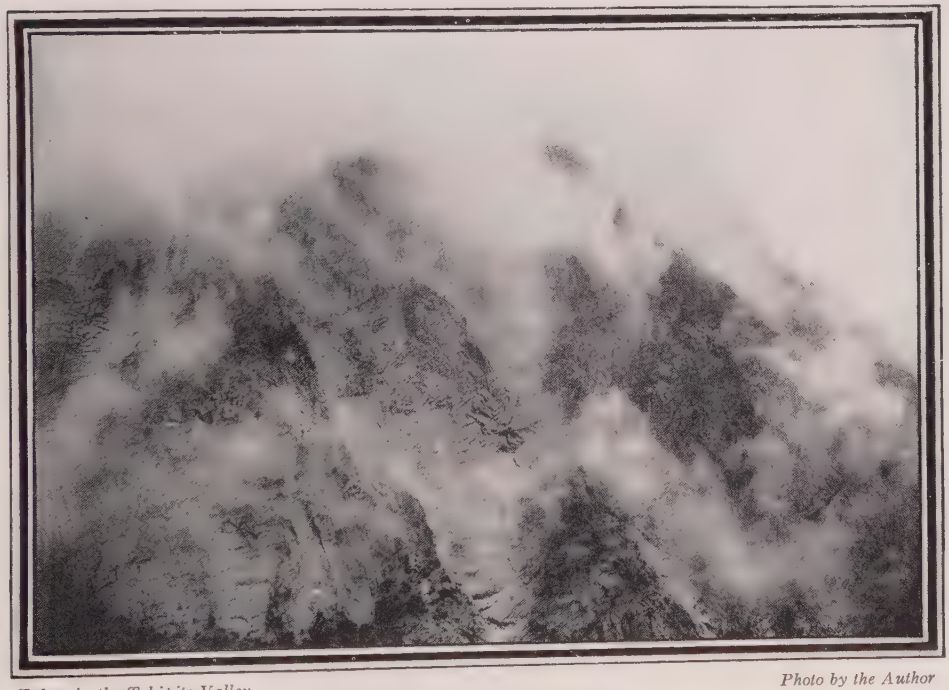
I accepted the photographic challenge which the discovery afforded, but first improvised a coat of mail, wherein a stuffed knapsack did duty for a helmet, and a wrapping of dunnage bags was designed to protect the shoulders. Like Don Quixote, I set out to meet my foe, but the gentil bird had respect for knighthood even of this decadent type, and forbore to offer further indignities. As she left the lists she indulged a stentorian cackle, *ak*, *ak*, *ak*, *ak*, a note which reminded one again of the Cooper Hawk, save that it had a deal more of menace in it.

Fortunately for our game and poultry, the "Blue Hawk" is comparatively rare in California. It appears to be confined during the nesting season to the timbered sections of the northern mountain ranges, save that it follows the Sierras south to about latitude 36° 30′. I have myself seen it only in the Warner Mountains, on Mt. Shasta (at timberline), in the Mammoth section, and in the valley of the Little Yosemite near Grigsby Point. The bird haunts the darkest woods as well as the open heights, and makes the Sierra Grouse (*Dendragapus obscurus sierræ*) a special object of attack. At other seasons it invades the lower valleys, chiefly those of northern California, receiving, no doubt, some accessions from outside the State.

The Western Goshawk is excelled by none in display of cunning or prowess. At times, indeed, the thirst for blood appears to dull its dis-

cretion, and it will return to seize a fowl even after it has been shot at; but oftener it marks the gunner from a distance and awaits the unguarded moment at the poultry-yard. After sighting game, this Hawk does not soar and hover, after the manner of the Prairie Falcon; rather it approaches in a horizontal direction at a low elevation and under partial cover of vegetation, then darts down suddenly or makes a quick side turn, seizing its victim deftly, and off again to a distant station. Having once got the lie of the land, a Goshawk will make requisition on a poultry yard two or three times a day, and may elude capture altogether, be the owner never so incensed over his losses.

"Nidification begins early, usually about the latter part of March or the beginning of April, long before the snow has disappeared from the mountains, and while the hillsides are still saturated with moisture, making it anything but easy work to look for their nests. These are usually built in tall trees and no particular preference seems to be shown in their selection. The nests are mostly placed close to the trunk and generally well hidden from view. Occasionally one is placed some distance out, or between the forks of one of the larger limbs, and on that account can be more readily seen. I believe each of these birds has its regular hunting



Taken in the Tehipite Valley WHERE THE GOSHAWK LURKS *Photo by the Author*

range, from which all other species of Raptores are driven off. At any rate I have never found the Western Red-tailed or Swainson's Hawks, the most common kinds found, breeding in the vicinity of a pair of Goshawks" (Bendire).

No. 330

Harris's Hawk

A. O. U. No. 335. **Parabuteo unicinctus harrisi** (Audubon).

Description.—*Adult* (sexes alike): General body plumage sooty black; the "shoulders," i. e., bend of wing with lesser wing-coverts, the axillars, lining of wings, and lengthened tibiæ, rich dark chestnut; basal half of tail with upper and lower coverts white, and the tip of tail white for about an inch. Bill blackish; feet (drying) yellow with black claws. *Immature birds* are more brownish black and the chestnut is less pure; under wing-coverts, abdomen, tibiæ, tail, etc., variously barred. Length of male about 508 (20.00); wing 330.2 (13.00); tail 228.6 (9.00); tarsus 80.5 (3.17). Length of females up to 609.6 (24.00); wing 355.6 (14.00); tail 279.4 (11.00).

Recognition Marks.—Gull size; black coloration set off by rich chestnut; tail white on basal half.

Nesting.—*Nest:* Of sticks, lined with bark and grass; placed at moderate heights in trees or cactus. *Eggs:* 2 to 4; pale bluish white, sometimes spotted or irregularly blotched with dull rufous (cinnamon-fawn color) or vinaceous gray. Av. size 54 x 42 (2.126 x 1.65); index 77.7. *Season:* April 10–June 10; one brood.

Range of *Parabuteo unicinctus.*—Southern borders of the United States south to Chile and Argentina.

Range of *P. u. harrisi.*—Resident in Lower Sonoran zone in the southern border states from southeastern California to southern Mississippi and south to Cape San Lucas and Panama.

Occurrence in California.—Resident in the valley of the lower Colorado River. Also casual near San Diego (Mission Valley, Nov. 17, 1912—Gray).

Authorities.—**A. O. U. Check-List,** 2nd. ed., 1895, p. 129 ("westward to Calif."); *Grinnell.* Pac. Coast Avifauna, no. 3, 1902, p. 77; *Stephens,* Condor, vol. v., 1903, p. 77 (Colorado Valley); *Grey,* Condor, vol. xv., 1913, p. 128 (Mission Valley, near San Diego); *Bancroft,* Condor, vol. xxii., 1920, p. 156 (Imperial County, breeding).

PARABUTEO means near-Buteo or almost-a-Buteo; but *harrisi* is quite a beauty if he is not quite a Buteo. Indeed, he is rather the handsomest of our hawks, especially if seen a-wing or down-sun, where the values of the white tail-coverts, terminal white tail-band, and chestnut epaulets may be developed in contrast with the rich black of the remaining plumage. He does bear a striking resemblance to the Buteos both in pose and in voice. The Harris Hawk has the same habit of posting in a conspicuous place, a tree-top or a telegraph pole, to guard against enemies

or to watch for prey. Its flight, however, is more frequently direct and much more rapid than in the case of any Buteo.

Early observers formed the impression of a sluggish, impassive bird, but the discipline of gun-fire must have taught it a good deal of caution. Mr. Brooks and I encountered the Harris Hawk on several occasions near Potholes, in February, 1913, but were unable to secure a specimen. Nor did the M. C. O. expedition to Arizona succeed any better in the spring of 1917, although we met the species several times, both on the Gila River and at our camp near Tucson. The birds were simply unapproachable save by 8-power binoculars.

According to Mr. Vernon Bailey, who had unusual opportunity to observe this species in Texas, it feeds largely upon small mammals, especially the wood rats (*Neotoma*). A nest which he found was nearly covered with the remains of these animals, including a dozen skulls. This hardly comports with Coues' designation of the species as the "Carrion Buzzard"; and it seems probable that this veteran overestimated the extent to which *P. u. harrisi* subsists upon carrion. The summer of 1917 should have provided a fair test of this characteristic, for the cattle in southern Arizona were dying off like flies, yet while we frightened numbers of the Audubon Caracara from carcasses, we saw no Harris Hawks similarly employed.

Probably the Harris Hawk is extending its range northward and westward, and will continue to do so if we can ever persuade the farmers that a live gopher-killer, always on the job, is a priceless boon to society, even though his shadow should accidentally fall upon the sacred precincts of the chicken yard. This handsome black hawk has never been known to kill birds, let alone hens; and it is a crime to shoot it for anything less than scientific purposes.

To that veteran collector, Mr. Frank Stephens, belongs the honor of having first established the right of Harris Hawks to a place in the California list. He took a specimen and saw two others in August, 1902,[1] on the Colorado River, near Ehrenberg. Mr. H. E. Wilder[2] saw these birds in considerable numbers at Palo Verde, further down the river, in December of the same year, and supposed that they were taking refuge in the river bottom from the sand storms which were raging in the adjoining desert. Mr. Leo Wiley took a specimen, Nov. 1st, 1914; and afterwards (April 5th, 1917), in company with Dr. Loye Holmes Miller, of Los Angeles, discovered a nest, the first for California.[3] Mr. Wiley reports that the three eggs were placed in a nest, presumably an old one, which he had seen the winter before in a mistletoe clump in a mesquite

[1] Condor, Vol. V., May, 1903, p. 77.
[2] Condor, Vol. XVIII., May, 1916, p. 127.
[3] Condor, Vol. XIX., July, 1917, p. 142.

thicket. This thicket bordered upon a lagoon, one of the overflow channels of the Colorado, and was not far from some houses, although the birds were clever enough to keep quiet and not to appear near the settlement itself. On the 27th of April the eggs hatched and the youngsters were seen to be covered with a light buffy down.

This species was early reported from northern Lower California, but was never known to have crossed the line west of the mountains till Mr. Harvey Grey secured a specimen,[1] a male in full plumage, in the Mission Valley near San Diego, Nov. 17, 1912.

No. 331

Western Red-tailed Hawk

A. O. U. No. 337b. **Buteo borealis calurus** (Cassin).

Synonyms.—Western Red-tail. Western Red-tailed Buzzard. Black Red-tail. Chicken Hawk. Hen Hawk.

Description.—*Adult, light phase:* Above dark brown or sooty brown, color nearly pure on upper back, upper scapulars, and minor wing-coverts, elsewhere much varied by lighter grayish brown, tawny, and outcropping white; basal white outcropping regularly on hind-neck; tawny most extensive on sides of neck and on cervix; longer scapulars and tertials dusky and white, and double tawny-barred; wing-quills blackening on exposed tips (often with violaceous or purplish reflections), faintly banded basally on outer webs, distinctly dusky and white on inner webs; 1st primary shorter than or about equal to the 8th, the point of the wing formed by 3rd, 4th, and 5th, the 2nd longer than the 6th; when folded usually but not always falling two or three inches short of end of tail; the first four primaries deeply emarginate on the inner web, the 2nd to the 5th lightly emarginate on outer web; tail rich orange-rufous, crossed near tip by narrow black band, and with suggestions of former (juvenile) black bands persistent in spots along sides of shaft, especially basally; upper tail-coverts like tail in color, or a little lighter, and obscurely dusky-banded; underparts white, variously broad-marked or washed, except on throat, with pale cinnamon-rufous, most heavily on sides of breast, where also broad-marked with dusky; throat and breast sparingly marked with blackish shaft-streaks; shafts on flanks deep rusty; flanks and shanks finely wavy-barred in two shades of pale rufous. Bill plumbeous; tarsus yellow, very stout; claws black. *Adult in (common) melanistic phase:* Entire plumage, *except tail and its coverts*, chocolate brown, rich sooty brown, or blackish, rich deep rusty usually warming on breast, and lighter rufous appearing on shanks. Between these two plumages many gradations exist. Erythrism, or a tendency to reddening of plumage, is noticeable in many dark-colored specimens, while albinism of some degree is not rare. *Immature:* Above much as in adult, but showing less of tawny and more of outcropping white; *tail entirely different*, grayish brown crossed by ten or twelve brace-shaped or waved bands of dusky; upper tail-coverts lighter, dusky-and-whitish-barred, with mixture of ochraceous; underparts white or pale ochraceous buffy, heavily streaked, spotted, and posteriorly barred with dark brown, except on

[1] Condor, Vol. XV., p. 128.

breast, which is nearly immaculate. Immature birds frequently show strong melanistic tendency, in which case the spotting of the underparts invades the breast and increases elsewhere nearly to the point of confluence. Length of male (average of six adults and full-grown immatures): 558.8-628.7 (22.00-24.75); wing 402.6 (15.85); tail 241.3 (9.50); chord of culmen 25.2 (.99); tarsus 91.6 (3.61). Length of female (6 adults and near adults): 590.6-692.2 (23.25-27.25); wing 425.5 (16.75); tail 254 (10.00); bill 27 (1.06); tarsus 94 (3.70).

Recognition Marks.—Crow to brant size; red tail when visible always distinctive; stouter proportions and more regal bearing, as compared with *B. swainsoni*, but not always distinguishable from that species afield.

Nesting.—*Nest:* Of sticks, lined with bark-strips, usnea, or grass pulled up by the roots; placed in crannies or ledges of cliff or high in trees. A large tree nest in the M. C. O. coll. measures 3 feet long by 2 broad and 1 deep, and has a hollow 8 x 10 x 2 inches. *Eggs:* 2 or 3, rarely 4, 5 of record; white, or pale bluish white, lightly stained, spotted, blotched, or smeared with reddish brown or, rarely, immaculate. The pigment variations include tilleul buff, vinaceous buff, avellaneous, wood-brown, fawn-color, Rood's brown, vandyke brown, chestnut-brown, tawny olive, and dresden brown. Av. of 36 sets 59.9 x 46.2 (2.36 x 1.82); index 77. Extremes: 54-66.8 x 43.3-49.5 (2.12-2.63 by 1.70-1.95). *Season:* Feb. 15th–May 1st, according to latitude and altitude; one brood.

Range of *Buteo borealis*.—North America, breeds from central Yukon, central western Mackenzie, central Keewatin, and Newfoundland, south to Florida and the Greater Antilles, Guatemala, and Cape San Lucas.

Range of *B. b. calurus*.—Western North America, except the coast district of southeastern Alaska, from central Yukon and western Mackenzie south to Cape San Lucas and central America; east to the western borders of the Great Plains and casually to Ontario.

Distribution in California.—Common resident of the widest distribution. Breeds from Lower Sonoran deserts to the limits of Upper Transition, and wanders into high Boreal.

Authorities.—**Gambel** (*Buteo borealis*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 45 (upper Calif.); *Coues*, Birds of the Northwest, 1874, p. 352 (syn., desc., crit.); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 41 (San Joaquin Valley); *Wetmore*, Condor, vol. xviii., 1916, p. 112 (speed of flight).

THE ALABAMA HILLS, in Inyo County, are reputed to be the oldest geological formation in America. By this I suppose it is meant that this modest escarpment of granite represents the core of a continental ridge older than the towering Sierras, which now dwarf them into insignificance. The superficial details might be as recent as those of any other granitic exposure; yet to the eye it is not so. It is rather as though the authentic eld had been preserved intact. When one gazes from above into the upper reaches of a certain canyon near Lone Pine, the conviction is forced upon him that he beholds not the effects of wind and weather, but those of *wave* erosion. These rounded and deeply sculptured forms were left by the laving of a primordial sea, and they have gone practically unmodified ever since. The panorama at the head of the

Taken in Imperial County *Photo by the Author*

AN AUDUBONNET

THE "DECORATION" WAS PROMPTLY RETURNED TO ITS MUMMIE

canyon back of the old Carter ranch is fairly stupendous. It is as though the ocean, at the word of some mystic command, had suddenly receded from a terrific tide-gut with its entourage of roaring reefs. There, are rounded bosses where the Plesiosaurus played; here, gloomy caverns which the urancient Kraken has only just made vacant; here, swirls in stones and crests of ripping reefs, which served as giant models for the dorsal scales of Stegosaurus. We came upon it after sunset, my son and I, and the glory of it smote us like a vision of Neptune with his bearded hosts. Surely we had stumbled upon a bit of the elder world, reserved by sorcery from the accustomed gaze of man. With bated breath we gazed, until we plucked at our flesh to see if we, too, were turned to stone. And as we gazed, a Redtail, lifting silently from an unseen ledge, winged across the chasm with such confident modernity that the spell broke in laughter.

A "Burke's Peerage" of the birds might not mention the Buteos under the head of royalty—*Falco* and *Aquila* are the autocrats *par excellence*—but Redtail's patent of nobility is very ancient, and is based upon the same claims as those which human lords have set up: viz., a predatory ancestry, unbroken possession of certain broad acres for many centuries, and a frowning castle upon some sightly hill. In this last respect the bird is not surpassed, in the Pacific States at least, by that arrogant old Hapsburg, the Prairie Falcon himself.

As to the broad acres, chiefly game preserves (to carry out the whimsy), the royal claim comes first (because, forsooth, the Falcon is the swifter bird); and there is always a horde of retainers—Sparrow Hawks, Burrowing Owls, Magpies, and Ravens—to consider, before the overlord may count his yearly rental of ground-squirrels, rabbits, mice, snakes, lizards, and the lesser fry. Moreover, in these evil days, the pirate Danes have swept down on the Redtail's coasts, have torn his acres with the plow

and have burnt his gopher-fields with fire. Worst of all, these ruthless invaders, having no use themselves for sage-rats, yet deny them to their rightful owner, the Redtail; and they pursue him fiercely with engines of destruction when he ventures to sample an imported Danish fowl. Verily, these be troublous times for the aristocracy. Alackaday!

Truth to tell, there is no more foolish obsession which afflicts farmer folk than this,—that all Hawks should be killed at sight; unless it be this other,—that all birds caught eating cherries are worthy of death. Penny wise, pound foolish, both of them! The man who is worst injured by this folly is, of course, the farmer himself, but society also suffers through him. Why, it is as if the man should send a charge of buckshot through a boy who stooped to pluck a strawberry—the while he cared nothing that the cattle were ravaging his wheatfield for lack of that same small boy to drive them out. In all seriousness, it is no exaggeration to say that, insofar as the three most easily slaughtered species of Hawks are concerned, the Marsh Hawk, Swainson's and the Redtail, any farmer in the grain-growing sections of this State could well afford to raise a hundred chickens annually and *feed them to the birds*, if by so doing he could secure immunity from the ravages of rodent pests. Yes; the excess of wheat and barley which the pests destroy annually in root and in blade would feed the chicks and repay the trouble tenfold.

Taken in Arizona *Photo by the Author*

OBSERVATION

WESTERN REDTAIL, ADULT, ON SAHUARO

The Western Redtail is still, after the American Kestrel (*Cerchneis sparverius*), the commonest hawk in California. It possesses great adaptability, so that it is able to maintain itself as well upon the Colorado and Mojave deserts as upon the middle slopes of the Sierras and the jutting cliffs of the boundless chaparral country. It retires irregularly from the more elevated valleys under stress of winter, but in late summer it rises to the very limit of trees. Only this season (1922), and in early July, we saw one over our camp in the Grand Cirque (alt. 11,000), where we were hunting for Leucostictes' nests.

By nature this handsome bird is little afraid of man. Young birds, though capable of sustained flight, refuse to believe ill of their human

Taken on the Mohave Desert *Photo by Pierce*

A BIRD O' FREEDOM POSE
YOUNG WESTERN REDTAIL

neighbors, to whom they have done no harm, and they fall easy victims to the prevalent bangitis. Older birds may halt on the tree-top for a fraction of a second too long, if they suppose the gunner is passing by and minding his own business; but if they catch the glint of intent in the human eye at a hundred yards, they are off—and safe.

The Red-tailed Hawk is a soaring bird, a *buzzard*, to speak accurately, although the word has fallen needlessly into disrepute. *Buzzard* is a mere reappearance, through the French, of the Latin *Buteo*. This, doubtless, from a primitive root now lost, *bu* or *bou*. One can almost see in this explosive syllable the utterance of a child struck with wonder at the near passage of some soaring Hawk. "*Bou!*" "See, Mamma (Ligurian or Latin matters not), big bird!" The wonder of it lies no less upon us of more thoughtful years—the wonder of flight, the beauty and the witchery of those lazy, high-flung circles. How consonant with sunshine and shimmering air and, anon, with peace itself, are those mystic circles of endless, unimpassioned quest!

There is, perhaps, no bird which oftener demands the services of binoculars. It is a Hawk, of course; and we think it is a Redtail; but we are never quite sure, until we have followed its gyrations long enough

to catch the glint of authentic rufous from the upper surface of the tail. Young birds do not show the red, but are obscurely barred instead. Of their identity we can be sure only through their association with adults, or else by "elimination." Redtails, moreover, exhibit many puzzling guises. Both melanism and albinism are common, with erythrism, that is, undue reddening of plumage, not unknown. Occasionally specimens are found which are black as coals, and these may be known with certainty only by measurements and averages. The strength of the wind or direction of flight are also important elements in sight determination of sky-high birds. A Western Redtail presents, normally, a rounded wing-tip of separated quills, of which the 4th primary is the longest. But a bird coming down against the wind has a sharply *pointed* wing. Careful scrutiny shows that as often as a Redtail comes down in this fashion, it reefs the wing by furling the first three primaries under the fourth—"as though by means of invisible brails," our nautical man says. The change of pattern thus effected is very striking, and the possible variations of outline should be borne in mind in the study of all sailing birds.

The devotee of binoculars, moreover, will witness many pretty wing-plays and perchance some thrilling aërial contests, if he follows the for-

Taken in Imperial Valley *Photo by the Author*

A NEST IN THE DESERT
THE HOST TREE IS THE OCATILLA (*Fouquieria splendens*)

Taken on the Mohave Desert *Photo by Pierce*

A FRIENDLY DISCUSSION

THE NEST IS EVIDENTLY IN THE TOP OF A JOSHUA TREE

tunes of the Redtail. Once a male Prairie Falcon, whose eyrie we found later, took it into his head to persecute a Redtail. He circled about rapidly and hurled himself again and again at the Hawk, but each time, at the expected moment of contact, the Buzzard turned deftly face up, presenting his talons to the persecutor; and each time, of course, the Falcon swerved short to avoid the parry. Both the birds were very much in earnest, to judge from the harsh cries which escaped them at the moment of "present talons"; but it was evidently an old game and an idle one, too, for no matter at what range or from what angle the Falcon struck, the Redtail was always ready, with a quick half-somersault, to receive him. Conducted thus in the open in a fierce glare of sunlight, it was surely a battle for the gods to witness—even though the issue was only a draw.

The Redtail is not afraid of the "King of Birds" either. It was in the Warner Mountains, July 6, 1912. Possibly the Eagle began the scrap, but if he did the Redtail took up the gauntlet with spirit and alacrity. When first sighted, the Eagle, a Golden, of course, was chasing the Redtail down a long air-slope. The Buteo avoided, dextrously enough, and thereafter maintained a superior position from which he swooped again and again at his royal nibs. The Eagle was manifestly bored, even though he was always prepared, so that the near-collisions were harmless; but it was a pretty sight to see the Redtail mount aloft,

fold his wings, and do the catapult act with all the skill and dash of a Falcon. When last seen, the Hawk had tired of the sport, and was soaring a thousand feet above the mountain. Bring on your Eagles!

A drawn battle with a member of its own species may be a more serious matter. Mr. Henry W. Marsden reports[1] an instance where two male Redtails engaged so violently that they fell presently to the earth, and were seized by a passerby before they could recover their wits, or get the blood mists out of their eyes.

Taken in Arizona ACTION *Photo by the Author*

Western Redtails nest indifferently in trees or upon cliffs, but they are studied to best advantage when the situation allows approach from above. The nest is a very substantial edifice of sticks and twigs, lined with frayed bark and, usually, a spray of fresh greenery. If it is a cliff nest, the Redtails exhibit some sagacity in placing it beyond the reach of coyotes and raccoons; and the choice of such a romantic situation raises the bird several degrees in the estimation of one who has known it heretofore only as a tree-dweller. The birds, as likely as not, betray their anxiety by sending down from some far height a strong, petulant *kee aaay*. If the nest is approached, interest becomes frenzy, and the Hawks either swoop toward the intruder repeatedly, or flap restlessly to and fro, uttering their agonized cries. At other times the Hawks discuss the situation in sharp notes of a shriller tone, *keeak'*, *keeak'*, *keeak'*.

The eggs, two or three, or very rarely four in number, are of a dull

[1] Condor, Vol. VII., p. 53.

bluish white, unmarked, or else blotched and clouded with rufous, and are laid in March or from the first to the third week in April, according to local conditions. Incubation lasts about four weeks, and the young remain in the nest five or six weeks longer. The young birds are fed exclusively on flesh, and it is a point of honor with the parents to keep an abundant supply of this on hand. What the chicks cannot eat at once is left conveniently near, on one side of the nest, and it is an easy matter, through frequent visits, to check up on the Buteonine bill of fare.

Taken near Santa Barbara *Photo by H. T. Van Winkle*

AN IMMATURE WESTERN REDTAIL
EVIDENTLY A WOUNDED BIRD

While the Redtail is, honestly, a very beneficial species, he is no saint. Prudential considerations, only, restrain him from attacks on the poultry yard. His staple articles of diet are the familiar round of ground squirrels, gophers, wood-rats, mice, snakes, frogs, lizards and insects. Individuals differ, naturally, both in taste and in prowess. I once frightened a Redtail from the carcass of a fresh-killed Scoter. The duck seemed to have been in good flesh, but there is always a suspicion of such birds along this Santa Barbara coast. A Redtail infant near Cholame had a headless snake and a fledgling House Finch awaiting the pleasure of its appetite; but a Brewer Blackbird sat undisturbed on eggs not two feet away from the youngster's nose. On Santa Cruz Island I saw a male Redtail visit his mate, who was just beginning to incubate, and leave for her acceptance a dainty in the shape of a Rufous-crowned Sparrow. Rather high living! but Santa Cruz Island is a gopherless, squirrelless, wood-ratless and all but pestless land.

These evidences are offered by way of concession, and in the interest

of scientific accuracy; but lest our enthusiasm for the Western Redtail should wane unduly, let us cite the testimony of Mr. Joseph Dixon, who writes of the birds of San Onofre:[1] "Each pair of hawks had its own squirrel pasture and the birds resented the trespassing of other hawks on their domain. The remains of gophers, ground squirrels, meadow mice, young cottontails and two species of snakes, the striped racer and gopher snake, were found in Redtails' nests, but ground squirrels seemed to be their principal diet. I found as many species of small mammals in hawks' and owls' nests in two days as I did by trapping for a week."

No. 332

Red-bellied Hawk

A. O. U. No. 339b. **Buteo lineatus elegans** (Cassin).

Synonyms.—Red-breasted Hawk. Western Red-shouldered Hawk. "Chicken" Hawk. "Hen" Hawk.

Description.—*Adult:* Above highly varied, brownish dusky, grayish brown of two shades, rufous and white; head and neck all around light grayish brown, bordered (or not, but at least tinged on throat) with ochraceous and marked with distinct dusky shaft-lines; lesser wing-coverts and bend of wing, the "shoulders," bright orange-rufous, with some blackish shaft-lines; remaining upperparts (chiefly and centrally) dark grayish brown or dusky, with marginings of tawny or pale grayish brown on back; tail crossed by five or six narrow white bands, including a terminal one; wing-coverts heavily barred or spotted and tipped with white; primaries similarly barred throughout, but pattern fading toward tips; 1st primary shorter than the 9th, the point of the wing formed by the 3rd, 4th, and 5th; the 2nd about equal to the 6th; 1st to 5th emarginate on inner web; 2nd to 5th slightly emarginate on outer web; tip of folded wing falling three inches or more short of end of folded tail; entire underparts orange-rufous, rich or pale, nearly solid on breast, elsewhere usually highly varied or barred with pale ochraceous on whitish, but sometimes rufous rich enough to obliterate all pattern; throat always (as aforesaid) and breast, occasionally and lightly, blackish shaft-streaked. Cere and feet chrome-yellow; bill blackish; claws black. *Immature:* Different; dark brown or fuscous above, only traces of rufous on wing-coverts, etc.; spotting of quills more ochraceous; tail dusky with seven or eight grayish bars which become more ochraceous and gradually obsolete basally; underparts not so richly colored as in adult, heavily streaked and striped with dark brown. Adult male: length 457.2-508 (18.00-20.00); wing 292.1-342.9 (11.50-13.50); tail 190.5-228.6 (7.50-9.00); bill 20 (.79); tarsus 75 (2.95). Adult female: length 508-558.8 (20.00-22.00); wing 304.8-355.6 (12.00-14.00); tail 215.9-254 (8.50-10.00); bill 22 (.86); tarsus 85 (3.35).

Recognition Marks.—Crow size; rufous shoulder distinctive; underparts usually rich red—more uniform than in the reddest *swainsoni*. Smaller, more active, and more secretive than *B. swainsoni*.

[1] Condor, Vol. VIII., July, 1906, p. 92.

Nesting.— *Nest:* Of sticks, lined indifferently with bark-strips; placed well up in tree, eucalyptus, sycamore, or live oak. *Eggs:* 2 to 4; in coloration much like those of preceding species, but usually much more heavily pigmented, sometimes with considerable undershell marking of vinaceous gray. Av. of 14 sets, 38 eggs: 52.8 x 41.9 (2.08 x 1.65); index 79.3. Extremes: 47.75-56.9 by 40.1-43.7 (1.88-2.24 by 1.58-1.72). *Season:* March 20–April 10; one brood.

Range of *Buteo lineatus.*—North America from the southern Canadian provinces to Florida, northern Mexico, and Lower California.

Range of *B. l. elegans.*—Pacific Coast district from southern British Columbia to Lower California and Sonora.

Distribution in California.—Fairly common resident locally in Lower Sonoran zone west of the Sierras. Occurs chiefly in the San Joaquin-Sacramento basin and in the warm valleys of the south central coastal ranges and in the San Diegan district.

Authorities.—Gambel (*Buteo lineatus*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 45 (Monterey, etc.; voice); *Cassin*, Proc. Acad. Nat. Sci. Phila., vol. vii., 1855, p. 281 (*Buteo elegans*, orig. desc.; Calif.); *Bendire*, Life Hist. N. Am. Birds, vol. i., 1892, p. 227 (nesting habits); *Sharp*, Condor, vol. viii., 1906, p. 144, figs. (San Diego Co.; desc. nest, eggs, etc.); *Pierce*, Condor, vol. xxi., 1919, p. 127 (food).

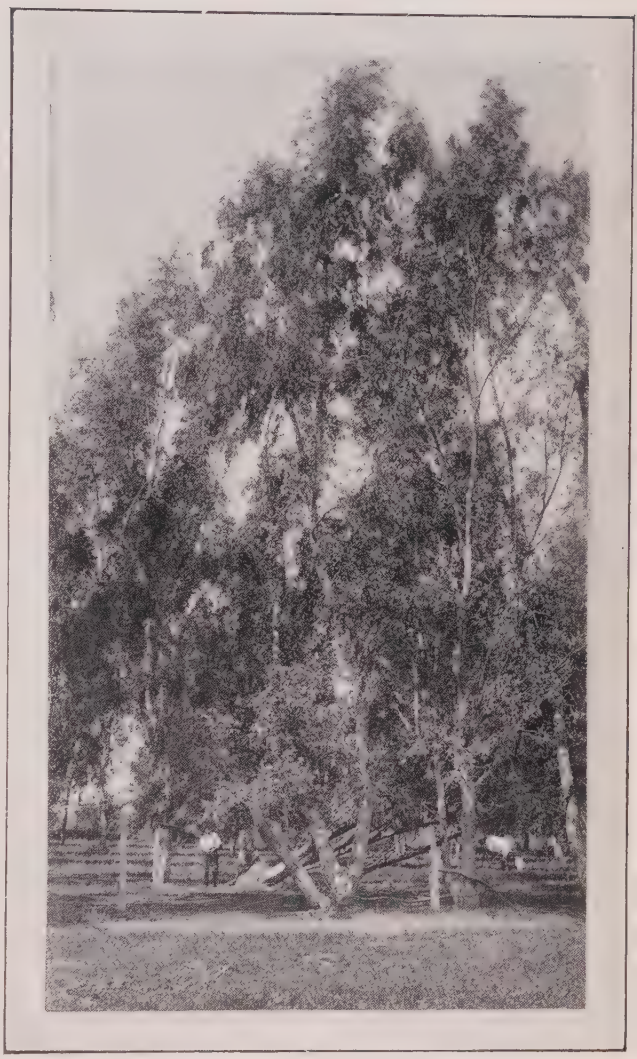
ALTHOUGH the Red-shouldered Hawk of the eastern United States is one of the best-known of Raptors, the western representative of the species seems to be not well known, save by a few fortunately placed observers. The range of *elegans* is much restricted, both locally and generally, as compared with that of *B. borealis calurus;* and in those limited sections the species appears to be sharply on the wane. It is best known from the western valleys of San Diego County, from the Sacramento-Joaquin basin, and from the interior valleys of the Monterey-Santa Barbara system of coast ranges. It is, moreover, closely confined to the lowland timbered sections, especially the groves (whether of oak, willow, cottonwood, or sycamore) which line the streams. Because of its attachment for cover, therefore, it does not fig-

Taken near San Diego *Photo by L. Huey and D. R. Dickey*

NEST AND EGGS OF RED-BELLIED HAWK

ure prominently in the local horizons, even where the bird is known to be of regular occurrence.

Most of our observation of bird-life is marred by self-consciousness on the bird's part. The hawk marks our distant approach and is ill at ease, fearing the gun. Self-consciousness becomes acute distress when the nest is threatened, and the behavior of the bird, while not unnatural, is still but a narrow revelation of its nature. If, however, one can steal up unawares and mark the pleasure of a mother bird as she rends a carcass and divides the portions among her clamoring young, one feels a special sense of privilege. It is a gift of the fairy wishing-cap. The Red-bellied Hawk, too, is one of the birds which will respond to the screeping call of a concealed observer. It is her business, no doubt, to wait upon all squeaking notes, and it is a treat to see her, puzzled, curious, but unafraid, as she turns now this way and now that upon a sheltered perch and scrutinizes the undergrowth. The eye is kindly, or a little vain perhaps, but there is reason enough for pride in that gorgeous breast of auburn. When, alas, the human disguise is discovered, the hawk departs in a sudden vision of black-and-white-barred upperparts, which is partial compensation for the interrupted play. A pair we observed at San Ardo, who were charged with the care of a single chick, were so impetuous of movement and so fearful of human approach, that it was several days before we could determine the species even after the nest was found. Not even the scream is uniformly indulged in, but when it is, one may be certain as to identity. Mr. Sharp has called the note, not inaptly, "a short snap-



Taken in San Bernardino County *Photo by Wright M. Pierce*

RED-BELLIED HAWK'S NEST NEAR TOP OF EUCALYPTUS

Photo by Donald R. Dickey

YOUNG RED-BELLIED HAWKS

ping bark." It is repeated in a ringing series which sets the woods agog, *kee ă' kee ă' kee ă' kee ă'*, or *yee-ak' yee-ak' yee-ak'*. The bird-man, especially the egg-man, counts this a lovely sound, but it is doubtful if the rest of nature's children, either furred or feathered, agree with him.

Of the nesting Mr. C. S. Sharp of Escondido is most competent to speak:[1] "Unlike the other large hawks the red-bellied does not seek a commanding situation for its nest. It is unusual to find them nesting in isolated trees, and it is very seldom the nest is visible from any great distance as is often the case with the Redtail and Swainson hawks. The preference is for some fairly thick willow and cottonwood grove and they have a great fondness for Eucalyptus groves, making their nests at times on the masses of bark that have sloughed off and collected in some large crotch of the main branches. These nests are, as a rule, very well concealed and only flushing the bird, or the sight of the handsomely barred tail over the edge, gives proof of what is there. This concealment, however, can hardly be considered as deliberate, for beyond the fact of the choice of a thick growing tree or a grove for the location of the nest there is never any attempt at it.

"The nest is generally about 50 feet from the ground, the height depending largely on the size of the surrounding trees, and may be an old crow's or hawk's nest remodeled, or an elaborate structure of the bird's own composition. If undisturbed the same nest will often be occupied year after year; but the birds generally have a second or third nest in reserve and will alternate, almost invariably doing so if a first clutch of eggs is taken. Where the gray Spanish moss is convenient to the nesting place a great

[1] "Nesting of the Red-bellied Hawk," by C. S. Sharp, Condor, Vol. VIII., Nov. 1906, pp. 144-148—an excellent article.

deal of that is used in the lining and often the long streamers will hang down over the edge giving a very pleasing appearance.

"The use of green leaves is a peculiarity of this species and it is very seldom one finds a nest finished or containing eggs where fresh leaves are not in evidence. These are generally of the same tree in which the nest is situated and are renewed from time to time until the eggs are hatched. I have found them in nests with eggs in all stages of incubation. After the young appear the practice is discontinued, the nest soon gets flattened out, and with hungry mouths to feed there is little time—if there is inclination—for the enjoyment of the merely beautiful."

Eggs of *elegans* are notably less heavily marked than those of *lineatus*, although there does not seem to be any constant difference in size.

All authorities are agreed in giving the Red-bellied Hawk a clean bill of health poultry-wise. Instances are cited where the Hawks have nested within 800 feet of poultry yards without offering any molestation to the inmates, not even to the young chickens. Birds are undoubtedly consumed to a limited extent, especially when the young hawks require the daintiest food. *Elegans* seeks humbler quarry as a rule than does the noble Redtail. If he rises on occasion to a ground squirrel (*Citellus beechyi fisheri*) or a brush rabbit (*Sylvilagus auduboni* and *S. bachmani*) he oftener descends to fence lizards and frogs, or even insects. The Red-bellied Hawk is an exceedingly useful species, and all wanton slaughter of these, as of any other Buteo, is criminal—an offense to God and man.

No. 333

Zone-tailed Hawk

A. O. U. No. 340. **Buteo abbreviatus** Cabanis.

Synonym.—Band-tailed Buzzard.

Description.—*Adult:* Deep lustrous black, the tail narrowly tipped with white and crossed by two narrow bands, ashy gray on the outer webs changing to white on the inner ones (hence, appearing gray from above, white from below); indications of a third band near base of tail; wing-quills obsoletely black-and-white barred, or at least mottled, on inner webs, especially below; feathers of nape white at base; the first four primaries emarginate on inner web; the tip of the wing formed by 4th, the 3rd and 5th about equal, the 1st about equal to or shorter than the 9th; tip of folded wing falling short of end of tail. Bill and claws black; cere and feet yellow. *Immature:* Much like adult, but tail crossed by about ten broad and somewhat irregular bars of gray or white; the barring of inner quills much more distinct; some outcropping of basal white on head and neck, and some exposure of ill-concealed white spotting on breast, flanks, tail-coverts, and inner edges of tertials. Length of adult male about 482.6 (19.00);

wing 393.7 (15.50); tail 222.25 (8.75); tarsus 63.5 (2.50). Adult female, length 533.4 (21.00); wing 431.8 (17.00); tail 247.6 (9.75); tarsus 69.85 (2.75).

Recognition Marks.—Crow size; coal black plumage with black and white banded tail (seen from below) distinctive. Tail-coverts *not* white, as distinguished from Harris's Hawk.

Nesting.—Not known to breed in California. *Nest:* Of sticks, lined with bark and green leaves; placed high in trees. *Eggs:* 2; pale bluish white, sometimes lightly marked with dull reddish brown. Av. size 54.4 x 43.5 (2.14 x 1.67); index 78.1. *Season:* May.

General Range.—Lower Sonoran zone from western Texas to Arizona, and south through Mexico and Central America to Venezuela and Brazil; casual in southern California.

Occurrence in California.—Casual near San Diego; three records.

Authorities.—Cooper (*Buteo zonocercus*), Proc. Calif. Acad. Sci., vol. iv., 1868, p. 7 (near San Diego); *Linton*, Condor, vol. x., 1908, p. 181 (National City); *Grinnell*, Condor, vol. xi., 1909, p. 69 (30 mi. n. San Diego); *Grey*, Condor, vol. xix., 1917, p. 103 (San Diego); *Mearns*, Auk, vol. iii., 1886, p. 60 (Ariz. desc. breeding habits, adult, young, etc.).

BRIEF INQUIRY suffices for a species which has transgressed our southern borders upon only three occasions. Needless to remark, the three offenders were promptly delivered over to scientific justice, and are now doing time in zinc-bound cells in two of our more notable museum prisons. Thus do we restrain presumptuous enterprise, and vindicate our regard for the established order of things.

The Zone-tailed Hawk is a black Buteo which enjoys—or suffers—an extended southern range, from southern Arizona, New Mexico, and Texas, to northern South America. Although of regular occurrence in the states named, the first United States record for this species was made near Escondido, California, by Dr. J. S. Cooper, Feb. 23, 1862. It has been reported by Mr. Anthony as a common species in the San Pedro Martir range of Lower California, and it would doubtless have established itself long before this in our southern counties if it had not been for the inevitable malady of bangitis which afflicts our jealous race. Presumably, where science has claimed these three specimens, for obvious if regrettable necessities, ranchers have killed thirty in alleged defense of their hens. Nothing new can happen in a world so constituted. The Zone-tailed Hawk, innocent, useful, interesting, will never be allowed to become a citizen of southern California.

No. 334

Swainson's Hawk

A. O. U. No. 342. **Buteo swainsoni** Bonaparte.

Description.—*Adult male in normal plumage:* Upperparts dark brown, fairly uniform as compared with other Buteos, but centers of feathers inclining to lustrous blue-black, the edges somewhat varied by lighter, or reddish brown; feathers of back, crown, and nape with darker shafts, and the hind-neck with some outcropping of basal white; upper tail-coverts lighter (area usually conspicuous in flight as whitish patch), mingled gray, ochraceous, and white, with narrow bars of dusky; tail lightening and changing to gray laterally, crossed by 8 or 10 narrow and not very distinct dusky bands, of which the distal member much the largest; flight feathers dark brown to purplish slate (according to age), lightly or scarcely barred on inner webs in decreasing ratio; point of folded wing formed by 3rd and 4th quills, reaching nearly to end of tail, the 5th primary much shorter, about equal to the 2nd; 1st longer than the 8th; the *first three emarginate on inner web*, the 2nd and 4th on outer; throat white, nearly immaculate; chest crossed by broad band of bright chestnut, marked by blackish shaft-lines; remaining underparts white, varied more or less by chestnut-rufous; the lining of wings and crissum nearly immaculate. *In melanistic phase:* Throat pencilled with black, and underparts clouded, chiefly in crosswise pattern, with chestnut; upperparts dark sooty brown. (All stages of intergradation between this and normal plumage.) Bill bluish black above and on tip, bright yellow on cere, gape, and base of lower mandible; feet blackish; iris brown. *Adult female:* Similar to male, but chest-band much darker, dark chestnut to brownish black; and remaining underparts clouded and barred with chestnut or black on white ground; and white-barred posteriorly. *In melanistic phase:* Dark sooty brown above. *Immature:* Above dark brown, varied by tawny edgings of feathers; head, neck, and underparts, including lining of wings, dull tawny or light brown, the throat and middle of breast often nearly immaculate, the head and neck sharply and narrowly streaked, breast, flanks, etc., spotted or blotched variously, with blackish; quills and rectrices somewhat as in adult, but barring usually a little more distinct. Adult male, length 482.6-508 (19.00-20.00); extent 1244.6 (49.00); wing 386.1 (15.20); tail 215.9 (8.50); tarsus 62.2 (2.45). Adult female, length 520.7-558.8 (20.50-22.00); extent 1270-1422.4 (50.00-56.00); wing 406.4 (16.00); tail 241.3 (9.50); tarsus 76 (3.00).

Recognition Marks.—Crow size; white throat; chestnut pectoral band of male, dark chestnut and blackish of underparts in common melanistic plumage; usually displays whitish rump; tail shorter and all proportions stouter as compared with Marsh Hawk (which also has white rump); less stout and without red tail, as distinguished from *B. borealis calurus*. But there is no certain field mark by which a young Swainson may be known from a young Red-tail.

Nesting.—*Nest:* A stout platform of sticks, lined with bark-strips and fresh leaves, placed at moderate heights in deciduous trees, tree yuccas, or sahuaros, sometimes on cliffs, rarely on the ground. Occasionally an old nest of crow or magpie is refitted. *Eggs:* 1 to 4, usually 2; pale greenish-, bluish-, or grayish-white, often tinged or obscurely spotted, rarely blotched, with dull reddish brown of various shades or vinaceous gray. Av. size 56.5 x 44 (2.22 x 1.73).

General Range.—North and South America. In North America only casual east of the Mississippi River. Breeds from Alaska, northwestern Mackenzie, and

Manitoba, south to Chile and Argentina. Winters chiefly south of the United States, but also irregularly northward to South Dakota and western Washington.

Distribution in California.—Common migrant, sporadically abundant throughout the State, save in humid coast belt. Common summer resident in Lower and Upper Sonoran zones both east and west of the Sierras but less common on the southeastern deserts. Less common and probably breeding in more open situations of Transition zone, and a frequent invader, at the close of the breeding season, of Canadian zone. Not found in winter.

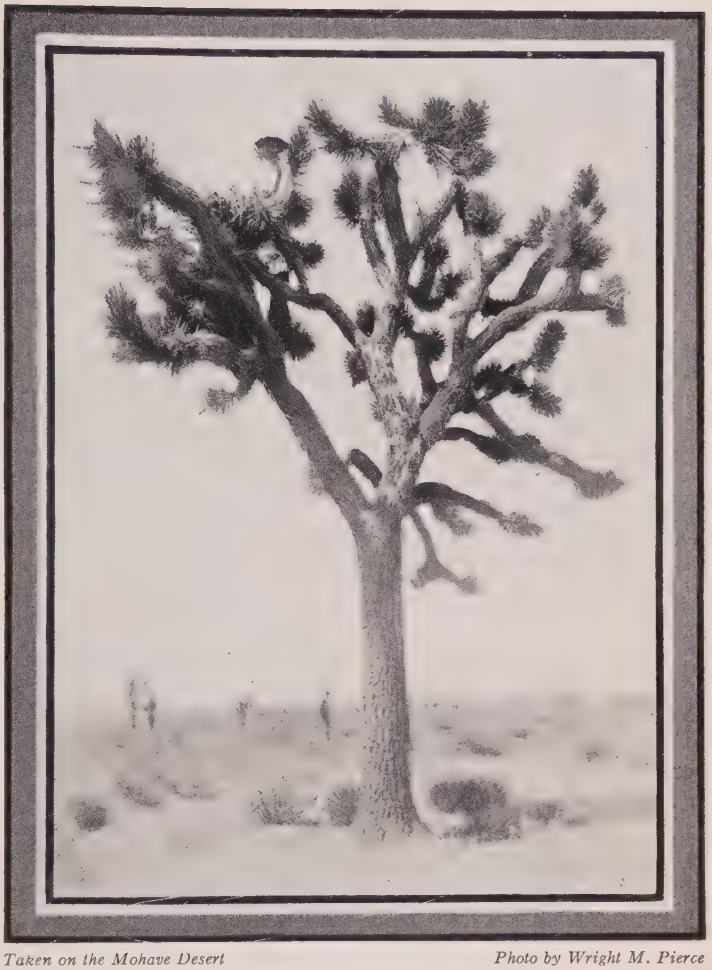
Authorities.—Gambel (*Buteo swainsoni*), Proc. Acad. Nat. Sci. Phila., vol. iii., 1846, p. 45 (Calif.); *Coues*, Birds of the Northwest, 1874, p. 355 (syn.; desc.; crit.; habits, etc.); *Sharp*, Condor, vol. iv., 1902, p. 116 (San Diego Co.; nesting habits, etc.).

ALL THE LEFT-OVER Hawks are Swainsons. That is, if it hasn't a red tail (*B. b. calurus*), or an especially long tail (*Circus cyaneus hudsonius*), and if it isn't conspicuously black-and-white barred above (*B. l. elegans*), or below (*Accipiter cooperi*), and if, and if, and if—why, then, it must be a Swainson Hawk. And at that you'll *never* know for sure that you hav'n't a young Redtail or an undersized Ferruginous Rough-leg. Knowledge of the Swainson Hawk, therefore, must always be founded on gun-work and maintained by the exercise of that sixth sense, instinct, which comes in varying degrees to veteran ornithologists. Fortunately, two elements of relief are vouchsafed us. The Swainson Hawk is never here in winter (if it is, ship the specimen forthwith to the Museum of Vertebrate Zoology, Berkeley, or to the International Museum of Comparative Oology, Santa Barbara), and it has what looks like a white rump.

Taken in San Luis Obispo County *Photo by the Author*

This last mark serves to distinguish it from all except the Marsh Hawk, which has a much longer tail, as well as slenderer proportions.

But the very prolixity of this warning will acquaint the novice with the unceasing danger of misidentification. *B. swainsoni* is always getting in the way, appearing unexpectedly, and upsetting all calculations. But *don't* shoot all the hawks just to make sure. Uncertainty is sometimes a virtue. Live birds are better than cold facts.



Taken on the Mohave Desert *Photo by Wright M. Pierce*

A SWAINSON'S NEST IN A JOSHUA TREE

THE TREE (*Yucca arborescens*) IS ONE OF THE FINEST EXAMPLES OF THIS WEIRD DESERT TYPE

Although a prairie bird, Swainson's is a little heavy on the wing. When he flaps, he does so with exaggerated zeal, as though to prove ability in a little wonted exercise; but as a sailor, or perhaps one should say sailer, he is a passed master. He leans hard on the breeze, and it carries him whithersoever he will. He travels without propulsion other than that of the wind, for he has learned to balance gravity against wind-thrust in a fashion which only a few of the more experienced air-men have yet attained. But because the plains are large and its landmarks few, the Swainson Hawk is not infrequently seen at rest, upon a fence-post by the roadside, on a tall sage-bush, upon a willow by the river's brink, or even upon the ground. In the wooded country they are seldom seen a-wing, and evidently spend much time studying the ground from the vantage point of tree-tops or commanding limbs.

Of course, the bird has won the highly distinctive name of "Hen

Hawk" because he *looks* as if he might carry off a hen. But as a matter of fact, he wouldn't. He is content with far humbler quarry, such as mice, moles, gophers, and the much-detested California ground squirrel. Insects, such as grasshoppers, crickets, beetles, and the like, form an even greater proportion of its food, and the Hawk is to be regarded as highly beneficial. No more eloquent testimony could be adduced for its harmlessness than the almost habitual nesting of smaller birds in the same tree with a Swainson Hawk.

Taken in Merced County *Photo by the Author*

FEELING A LITTLE GROGGY

A DAZED SWAINSON HAWK WHICH WE PHOTOGRAPHED *ad lib.*

Many observers have testified to this quaint form of hospitality, and the following species of birds are known to have built into the actual structure or under the shelter of occupied nests of the Hawk: *Lanius ludovicianus excubitorides*, *Icterus bullocki*, *I. cucullatus nelsoni*, *Carpodacus mexicanus frontalis*, and *Tyrannus verticalis*. The last-named is an especially common commensal, probably because exposed portions of the hawk's prey, left, as they so often are, upon the side of the nest, are an attractive bait for insects. Yet the bird whose portrait is presented herewith was evidently suffering from the zeal of an undiscerning Tyrant. We picked him up in a dazed condition, and figured from all the evidence that he must have been struck by a Western Kingbird and put *hors de combat*, as he was

innocently breasting the wind in the vicinity of the Tyrant's nest.

In regions where the bird is not much disturbed, nesting is conducted at any height. A willow tree fifteen feet high, or an ocatilla of six, will do as well as a sycamore of fifty. Under persecution, however, the bird, according to Mr. C. S. Sharp,[1] soon learns discretion, and places its nest on tipmost limbs or outermost branches which defy molestation. The species is, therefore, very adaptable in its requirements. In Arizona we found it nesting in the thorny embrace of the giant cactus. Another observer, Lieutenant Benson, found forty-one nests in a single season, all placed in mesquite trees at heights of from 3 to 15 feet. Sharp finds them in western San Diego County in tall sycamores, formerly occupied by the Red-bellied Hawk. Sometimes, though rarely, they nest on rock ledges, or projections on the face of earthy bluffs. At Goose Lake, in Modoc County, I found a nest in which these birds evinced a proprietary interest, 100 feet up in a giant yellow pine tree. The tree was 12 feet around at the base, and it was 25 feet to the first live limb. [Remarks made by the author on the 17th day of June, upon the occasion of finding the nest still empty, have been properly deleted by the censor.]

Taken in Merced County — A FORMAL PROTEST — *Photo by the Author*

The nesting platform is usually rather small for the size of the bird, measuring, as it does, less than two feet in diameter by a foot, or such a matter, in depth. It is composed entirely of sticks, but is lined afresh each year with dried grass, bark-strips, or small leafy twigs. One seen in a northern locality contained a quantity of the flowering twigs of a willow (*Salix amygdaloides*) and had quite a pleasing appearance.

The Hawks spend a good deal of time in the vicinity of their nests

[1] "Nesting of Swainson Hawk," Condor, Vol. IV., Sept. 1902, p. 117.

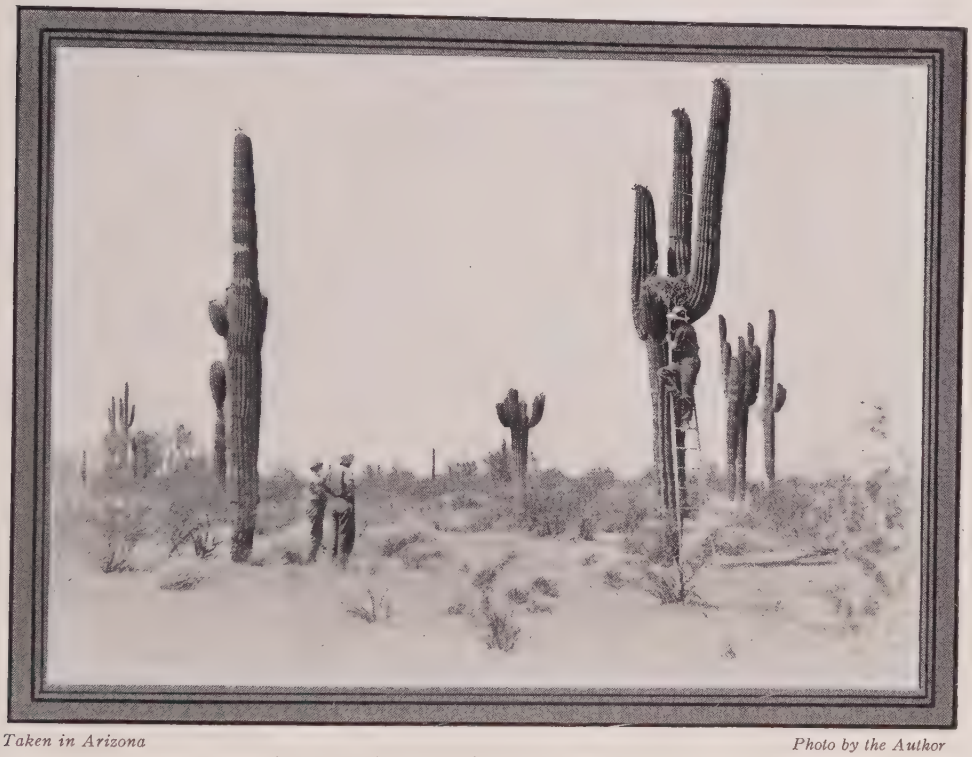
Taken on the Mohave Desert *Photo by Pierce*

NEST IN JOSHUA TREE, FROM ABOVE

even before deposition of eggs has begun; and if a first set is taken, the female is very likely to entrust a second to the same nest. Two or three, rarely four, eggs are laid, at intervals of two days, and they require twenty-eight days of incubation. Eggs are rarely deposited before the middle of April, so that the young are not often a-wing before the last week in June. Always unwary, except where unjustly persecuted, the Swainson Hawk will often allow a near inspection of its person; while a young bird imagines you are joking, and gapes appreciatively when you fling it a tentative clod from the roadside.

Swainson's Hawk is the most conspicuously migratory of any of the Hawks, and it sometimes travels in great companies numbering over a thousand individuals. Such a notable movement the author witnessed as a child in western Kansas. An east-and-west-lying creek bed presented in its fringing timber of elm the only opportunity for shelter to be had for miles in either direction. Into the more prominent trees of this coveted timber, on a late October afternoon, came a large detachment of migratory hawks, to the number of a thousand or so. No doubt the Swainson Hawks formed the bulk of the predatory host, gone into

camp for the night, but the most notable feature of the gathering was the variety of its constituent species. At least it seemed to an excited small boy that hawks of every shape, size, and hue were seated before him, paying no attention to his presence, save to yawn as they reviewed the day's long journey. Shades of Audubon! What a sight! But that was before the days of the Graflex.



Taken in Arizona *Photo by the Author*

A SWAINSON HAWK'S NEST IN SAHUARO

These migratory flights of Swainson Hawks may be witnessed occasionally in almost any western region. Since the breeding range of the species extends from southern California to Alaska, the north-bound parties must at some post pass over their established fellows in successive waves. Mr. Sharp, however,[1] finds that the southernmost stations are not the ones first occupied. "The Swainson Hawks arrived here (Escondido) from the south about the 10th to the 20th of March, sometimes in large flocks or in bands of a dozen or two. The earliest and largest flocks all go north, the summer residents not coming till a couple or three

[1] Op. cit., p. 117.

weeks later and going at once to their quarters, which they refit preparatory to permanent occupancy later on."

On April 4th, 1914, Mr. Adriaan van Rossem saw thirty birds, chiefly of the dark type, moving north at Pomona. On the 3rd of May of that same year I saw a languid company of 24 birds at Goleta, in Santa Barbara County. On the 18th of April, 1916, we witnessed a notable movement of these birds over the Carriso Plains, where we had paused for a midday lunch. The birds were trending north, but in such a leisurely fashion that it was difficult to realize that their course had a distant goal. The hawks soared about silently, on the lookout for food, and they gravitated toward any point of interest, however trivial. Once a dozen of them made our automobile the center of attention, and we obtained intimate views of some "Beauty, Ohs" with purplish dark brown underparts. Many passed so close that the fine banding of the tail was distinctly revealed. Otherwise, the lightening of color toward the base of the tail, or upon the basal two-thirds of the tail (in which case definitely rufous) was the notable "recognition mark." The show lasted for an hour or so, and there were at one time above a hundred birds in sight.

No. 335

American Rough-leg

A. O. U. No. 347a. **Buteo lagopus sanctijohannis** (Gmelin).

Synonyms.—American Rough-legged Hawk. Rough-legged Buzzard.

Description.—*Adult, normal (light) phase:* Head and neck all around white or flaxen, narrowly streaked with dark brown, sparingly on throat; remaining upperparts dark brown or brownish fuscous, varied by ochraceous or ochraceous-buffy, marginal brownish gray and outcropping white; wing-quills not barred, at least on exposed surfaces, but grayish-edged and with much basal white on inner web; four outer primaries deeply emarginate; upper tail-coverts and basal portion of tail (usually for more than half its length) white; terminal portion of tail crossed by broad, subterminal band of dusky, and usually by several narrow, irregular or broken bands anterior to this; underparts whitish, or pale ochraceous-buffy, spotted or broadly streaked, chiefly on breast, with blackish; a loose broken band of dusky across belly; thighs often ochraceous; tarsi feathered to the toes, in front; feet yellow; bill and claws black. *Immature, normal phase:* Similar to adult, but terminal portion of tail plain grayish brown; primaries with basal white on *external* web; markings of underparts confluent on belly in a broad, unbroken, abdominal belt of deep brown; thighs spotted with dusky. *Adult and immature, melanistic phase:* Entire plumage black, in any degree, save that the tail is white-barred and primaries exhibit some basal white. This phase is quite common and seems to be independent of age, sex, or season. Both sexes: length 495.3-596.9 (19.50-23.50); wing 400.1-457.2 (15.75-18.00); tail 228.6-279.4 (9.00-11.00); culmen from cere 20.3-25.4 (.80-1.00). Female about two inches longer than male and correspondingly proportioned.

Recognition Marks.—Brant size; feathered tarsi distinctive; best recognized in the field by its, usually, dark coloration and heavy flight; basal white of tail also distinctive if properly discriminated from that of the upper tail-coverts of the Marsh Hawk; black or brownish and white in large masses on under surface of wing.

Nesting.—Does not breed in California. *Nest:* A bulky affair placed high in trees or on ledges of rock; of sticks, fairly well lined with bark-strips, leaves, and soft materials. *Eggs:* 2 or 3, sometimes 4 or 5; quite variable in size, shape, and pigmentation; bluish white or dull white, sometimes unmarked, but oftener spotted, blotched, or streaked with reddish brown or chocolate, and with more or less undershell marking of vinaceous gray. Av. size 56.5 x 45 (2.22 x 1.77).

Range of *Buteo lagopus.*—Northern portion of Northern Hemisphere, south in winter to southern United States, southern Europe, and Japan.

Range of *B. l. sanctijohannis.*—Breeds in Alaska and the northern Canadian Provinces; winters from the northern boundary of the United States (or from Colorado or the Plains region) south to central California and the Gulf States.

Distribution in California.—Of rare occurrence in winter south at least to Santa Clara and Fresno. Has been much confused with succeeding form and trustworthy records are few.

Authorities.—Gambel (*Butaëtes sanctijohannis*), Proc. Acad. Nat. Sci. Phila., iii., 1846, p. 45 (upper Calif., winter); *Tyler,* Pac. Coast Avifauna, no. 9, 1913, p. 43 (San Joaquin Valley; habits); *Grinnell,* Pac. Coast Avifauna, no. 11, 1915, p. 66 (status in Calif.).

A LARGE, dark-colored bird, "bigger than a Hawk and not as big as an Eagle," seen in winter flying heavily to and fro across the meadows at a low height, or perching for considerable stretches of time on pasture boulders, fence-posts, or low stubs, commanding open situations, may safely be put down in the note-book as an American Rough-legged Buzzard. If seen in air, the bird may remind one of a Turkey Vulture out of season, but a second glance will take account of its fan-shaped tail, its shorter wings, and rather more rapid movement. The species is largely crepuscular, almost nocturnal, in habit, and is to be looked for on dark days rather than bright ones. Its food consists almost exclusively of field mice and other small rodents, although an occasional rabbit may vary its fare.

As might be inferred from the humble nature of its quarry, the Rough-leg is a peaceable bird, rather sluggish in movement, and, except where persecuted, quite unsuspicious of man. While hopelessly "ignoble" from the Falconer's standpoint, the bird has a fine presence and a bright eye; and it would seem to deserve the name "gentle," rather better than does the rapacious Peregrine. Its occasional presence with us in winter is entirely beneficial, and the bird should be carefully protected.

Evidently considerable confusion has always existed as between this and the succeeding species, *B. ferrugineus.* The latter is typically white below, but is not infrequently melanistic, and I believe that dark speci-

mens are more frequent upon the Pacific Coast than on the Great Plains. The American Rough-leg is almost anything in plumage, from lightly mottled brown to black, and its general appearance is exceedingly variable. Dr. Cooper naively conjectured that the bird might breed "in the high mountains"; but later observations have failed to substantiate the claims of the American Rough-leg to a place on the breeding list of any western state.

No. 336

Ferruginous Rough-leg

A. O. U. No. 348. **Buteo ferrugineus** (Lichtenstein).

Synonyms.—California Squirrel Hawk. Ferruginous Rough-legged Buzzard.

Description.—*Adult, normal phase:* Head above and on sides, back, wing-coverts, and rump, mingled blackish and chestnut-brown, each feather darker centrally and edged with chestnut, the forehead and sides of head further edged or mingled with white; primaries blackish with glaucous bloom on outer webs, shafts chiefly white, and inner webs largely whitish; the remaining quills similar but more or less blackish- and whitish-barred on inner webs; tail below silvery white, above mingled ashy and ferruginous with white base and tip; head above and sides black-and-white streaked in about equal amounts; underparts chiefly white, the chest lightly marked with rusty; throat, neck, and breast with sharp blackish shaft-streaks; flanks, flags, and tarsi strongly tinged with rusty red and marked with blackish; also more or less marking of chestnut on belly and sides. *Adults, melanistic phase:* Above rich chocolate brown; below mingled with rusty and chocolate; tail unchanged. Bill dark bluish; feet and cere yellow; irides light brown or yellow. *Immature:* Upperparts grayish brown (bister nearly) with tawny edgings; tail without rusty, white for basal third, remainder grayish brown, crossed by several indistinct dusky bands; underparts nearly pure white, not tinged with rusty posteriorly, but sparingly marked, as on sides of breast, flanks, and shanks, with dusky. Adult male, length 571.5 (22.50); extent 1384.2 (54.50); wing 421.6 (16.60); tail 254 (10.00); tarsus 69.9 (2.75). Adult female, length 603.3 (23.75); extent 1435 (56.50); wing 457.2 (18.00); tail 273.1 (10.75); tarsus 85 (3.35).

Recognition Marks.—Brant size; soaring flight or sluggish flapping; strong mingling of rusty red above, distinctive in any adult plumage; white of underparts shading to rusty *posteriorly*, of normal plumage, unique.

Nesting.—*Nest:* A bulky platform of sticks on ledge or cliff, rarely in trees; lined with fresh twigs and green branches, or variously. *Eggs:* 2 to 4; white, or greenish white, rarely immaculate, usually handsomely spotted and blotched, boldly or obscurely, sometimes sprinkled, with soft reddish browns or rich rufous (Rood's brown, cinnamon-brown, russet, hazel, carob-brown), and with undershell markings of vinaceous gray. Av. of 15 specimens in the M. C. O. coll.: 59.5 x 46.5 (2.34 x 1.83); index 78. Extremes: 55-65 by 42-51.2 (2.16-2.56 by 1.65-2.016). *Season:* April 25–May; one brood.

General Range.—Breeds in the Great Plains region of western North America from northern Montana, southern Saskatchewan, and southern Manitoba, south to Colorado and Kansas. Apparently the only authentic record of the nesting of this

bird west of the Rocky Mountains is that by C. S. McCarthy in Rush Valley, Utah, May 3, 1859 (Bendire, "Life Histories," vol. i., p. 262). Winters south to Lower California and Mexico and casually east to Illinois and Wisconsin.

Distribution in California.—Formerly abundant winter resident and migrant both in San Diego district and San Joaquin-Sacramento Valley; also on northeastern plateau. Now very rare; three occurrences reported in past dozen years. The "breeding record" (Cosumnes River, 1851, Heermann, Pac. R. R. Rep., x., 1859, pp. 32, 33) is very unsatisfactory.

Authorities.—Lichtenstein (*Falco* [*Buteo*] *ferrugineus*), Abhand. Konigl. Akad. Wiss., Berlin, 1838, p. 428 (orig. desc.; Monterey); *Coues*, Proc. Acad. Nat. Sci. Phila., 1866, p. 46 (s. Calif.; desc., meas.; anatomical); *ibid.*, Birds of the Northwest, 1874, p. 363 (syn., desc.; habits, etc.); *Oberholser*, Auk, vol. xxxvi., 1919, p. 420 (syst., nomencl.).

HOWEVER sanguine one's temperament, it is impossible to follow the history of this gently noble bird of prey without being overtaken by sadness. Our human breed is still, apparently, so undeveloped, so unaware, that many noble aspects of nature and many precious fellow creatures must be sacrificed before we will give effective heed to the modern prophets of conservation. In particular, our ruthless and undiscriminating slaughter of the birds of prey is one of the most deplorable of all examples of human folly. Jealousy of the hawk is as ancient as the institution of *hens*. Nay, it is more ancient, for, without doubt, Urbuteo, the Pleistocene hawk, quick of eye, must at some time have seized and borne off a rabbit which our shaggy ancestor, Onkh, had just bowled over with a far-flung stone. His Hairy Highness was disgruntled. The feud was on, and war thenceforth was incessant, with the odds in favor of the bird until the modern shot-gun appeared. The rest was easy. We are avenged! Yes; and immeasurably impoverished.

Take, for example, the case of the "California Squirrel Hawk." These Ferruginous Rough-legs were so common in the early days, the Fifties and Sixties of last century, and their presumptive usefulness was so clearly noted, that by common consent they received the name of California Squirrel Hawk. As destroyers of those hated rodents *Citella beecheyi* and their allies, the Squirrel Hawks were *worth their weight in gold* to the young State of California. They were never known to attack or destroy domestic fowl of any kind. Yet so poorly did our fathers requite their services that a recent authority[1] could say: "Now notably scarce or altogether wanting in all regions from which recent reports have been made." Contrast this with Cooper's account written in, or at least valid for, 1870: "This large and powerful bird abounds in spring and fall in the southwestern parts of California, . . . I found it common in December at Martinez, and few probably migrate beyond (i. e. south of) this State.

[1] Grinnell: A Distributional List of the Birds of California, Oct. 25, 1915, p. 66.

It is usually seen sailing slowly over the plains, sometimes in circles, occasionally pouncing down obliquely upon its prey, which consists chiefly of the large ground-squirrels. It usually alights upon the ground, but often on trees also."

The moving cause of the intervening slaughter was chiefly idle sport, though Dr. Brewer[1] cites an instance of a more worthy, if somewhat amusing, consideration: "The specimens procured by Mr. Kerr were taken in the Tulare Valley, in January, 1846, and are stated in his notes to have been remarkably fat, and in excellent condition generally, so that some of his party shot these birds whenever opportunity offered, for the mess-kettle, and considered them very good eating."

The early writers assumed from the bird's abundance that it was a California breeder, and Dr. Heermann made a specific report of a set of two eggs taken from a nest in the fork of an oak on the Consumnes River. Both the circumstances surrounding the nest, and the appearance of the eggs themselves, which are still preserved, justify the suspicion that what Dr. Heermann really found was a nest of the Swainson Hawk. In like manner, Dr. Coues' assumptions regarding Arizona localities, especially Fort Whipple, have been disproved. There is a record,[2] backed by skins, of a nest found in Rush Valley in northern Idaho, May 3rd, 1859; and I am inclined to think that this may prove to have been the westernmost breeding station for the species.[3] Its center of abundance in the breeding season is the prairie section of Dakota, Montana, and Saskatchewan; and its nests are usually placed upon the ground or upon some commanding pinnacle of rock. We have usually denied ourselves the right to follow our winter guests "out of bounds," but I cannot forbear to quote a bit of first-hand testimony from an observer in Montana:[4] "I have watched the hawks often through glasses in our alfalfa field after the first crop has been taken off. The pocket gophers get pretty busy tunneling and pushing all the loose damp earth up in piles on the surface. The hawks fly slowly over the field until they discover a fresh pile of damp earth. Here they will alight softly, and wait for the gopher to push close to the surface. They will then spread their wings, and rising a few feet in the air come down stiff-legged into the loose earth, when the gopher is transfixed and brought out. I have seen them eat the gopher where caught, and at other times carry it away." California could afford to subsidize about four million gopher traps of that type: What fools we have been!

[1] Baird, Brewer & Ridgway: "A History of North American Birds," Vol. III., p. 303.
[2] Bendire: Life Histories, Vol. I., p. 262.
[3] This in spite of a circumstantial account published by the author in "The Birds of Washington," of a set taken near Chelan, April 10, 1896. The evidence in this case, justly questioned by Major Brooks, is puzzling and inconclusive. The two eggs taken resemble those of Swainson's Hawk (*Buteo swainsoni*), and the measurements, 62.7 x 46.5 and 61.1 x 46.7, suggest the maximum of that species rather than the average 63 x 49, of *Buteo ferrugineus*. The nest was a large one, placed midway of a sheer granite cliff 125 feet in height. The birds impressed me by their large size, but they were very wary and could not, unfortunately, be secured.
[4] W. P. Sullivan, *in epist.* to E. S. Cameron, Auk, Vol. XXXI., April 1914, p. 166.

No. 337

Golden Eagle

A. O. U. No. 349. **Aquila chrysaëtos** (Linnæus).

Description.—*Adults:* General plumage rich dark brown, the feathers with considerable individual variability, sometimes purplish lustrous, sometimes paling on wing-coverts, etc.; the lanceolate feathers of occiput and cervix buffy-tipped and tawny-edged (scarcely "golden," but the name arises here); wing-quills and tail blackish (in fresh feather bluish- or purplish-lustrous), the latter clouded or obscurely barred for the basal two-thirds with grayish brown and whitish; tarsi, fully feathered to the toes, paler or whitish. The birds become somewhat gray with age. *Immature:* Like adult but blacker; basal two-thirds of tail plain white, contrasting with terminal black; a vaguely rounded whitish area on under surface of wing; tarsi still paler than those of adult. *Nestling:* Covered with pure white down; quills and tail showing blackish. Adult male, length 762-914.4 (30.00-36.00); wing about 609.6 (24.00); tail 368.3 (14.50); bill 40.6 (1.60); tarsus 95.3 (3.75). Adult female, length 889-1016 (35.00-40.00); wing about 660.4 (26.00); tail 393.7 (15.50); bill 45.7 (1.80); tarsus 106.2 (4.18). Hind claw along curve 65 (2.56); expanse of wings from six and one-half to seven and one-half feet.

Recognition Marks.—Largest. Not easily distinguished at distance from immature Bald Eagle; feathered tarsi, of course, distinctive.

Nesting.—*Nest:* A bulky platform of sticks with a shallow inner depression lined with grass, bark-strips, sage-leaves, or other soft substance, placed in inaccessible situations on cliffs, or less commonly in trees. *Eggs:* 1, 2 or 3, rarely 4; ovate or rounded ovate; white, sometimes immaculate, but usually speckled, spotted, blotched, or wholly immersed in soft browns (vinaceous buff and fawn-color to russet-hazel and rich rufous). Av. of 20 eggs in the M. C. O. coll.: 73.8 x 58.1 (2.906 x 2.287); index 78.7. Extremes: 66.8-81 by 53.3-61.7 (2.63-3.19 by 2.10-2.43). *Season:* Feb. 15–April; one brood.

General Range.—The northern portion of the Northern Hemisphere, south to northern Africa, the Himalayas, China, and Mexico, chiefly in mountainous districts. In North America, from northern Alaska, northwestern Mackenzie, central Keewatin, and northern Ungava, south to central Lower California, central Mexico, and Texas, and east of the Rocky Mountains to the Black Hills (South Dakota), Manitoba, northern New England, and Nova Scotia, and rarely in the Allegheny Mountains south to North Carolina.

Distribution in California.—Formerly abundant in all mountainous districts, save in the humid coastal strip. Now rapidly diminishing in numbers, but still fairly common in the coastal ranges south of San Francisco Bay and the mountains of the San Diegan district. Found also less commonly in the Sierra Nevada and along the inner northern coast ranges and in the Warner Mountains.

Authorities.—**Heermann** (*Aquila canadensis*), Rep. Pac. R. R. Surv., vol. x., 1859, p. 30 (Livermore Pass; Mokelumne River); *Fisher*, Hawks and Owls of the U. S., 1893, p. 93, pl. 13 (food, etc.); *Finley*, Condor, vol. viii., 1906, p. 5, figs. (Santa Clara Co., desc. and photos of nest, eggs, young, etc.); *Oberholser*, U. S. Dept. Agric., Biol. Surv. no. 27, 1906, p. 20 (economic; habits, distr., food, etc.); *Miller*, Univ. Calif. Publ. Geol., vol. vi., 1911, p. 307 (fossil).

Taken in Fresno County *Photo by the Author*

A VEILED THRONE

TEHIPITE DOME SHOWS THE EAGLE A SHEER HALF MILE OF GRANITE

BECAUSE of the racial weakness for symbols and striking generalizations, we have been taught that the Golden Eagle is the embodiment of all regal qualities, including courage, magnanimity, and valor in defense of offspring. There is some foundation for all this. In his mountain home the majestic flight of the Eagle truly befits the grandeur of the scene. Cradled on a beetling cliff and schooled in the clouds, it is little wonder that the Eagle should have become for us the symbol of both prowess and aspiration. Even in captivity there is something awful about his piercing eye, and the unrest of the royal captive appeals to all that is chivalrous in our natures.

But the reputation of the Eagle race, quite as in the case of our own, has been made by a few individuals, and their feats are a revelation of the possibilities inherent in the breed rather than chapters from common life. Never shall I forget the pained disappointment over my first Eagle's nest in a northern county. The situation was romantic enough—a ledge of rock some three hundred and fifty feet up on the side of the gulch, and seventy-five feet clear of the talus below. At the time of my first visit, May 18th, the nest contained two eaglets about six weeks old. Armed with a stout

birchen staff, I worked my way over to a secure footing within a dozen feet of the nest. The remaining distance was a nasty bit of climbing, and I preferred to await the first onslaught of the outraged parents where there would be some chance of defense. Fudge! The fire-eating birds appeared once or twice in the middle distance, but paid no more attention to the peril of their offspring than as if I had been a magpie coveting the crumbs from the royal table.

Three weeks later I revisited the nest and put the eaglets to flight. One of the old birds came up and superintended the gliding downfall of the less capable child; but seeing her safely upon the ground, immediately went away marmot-hunting in perfect unconcern. If there is one bird

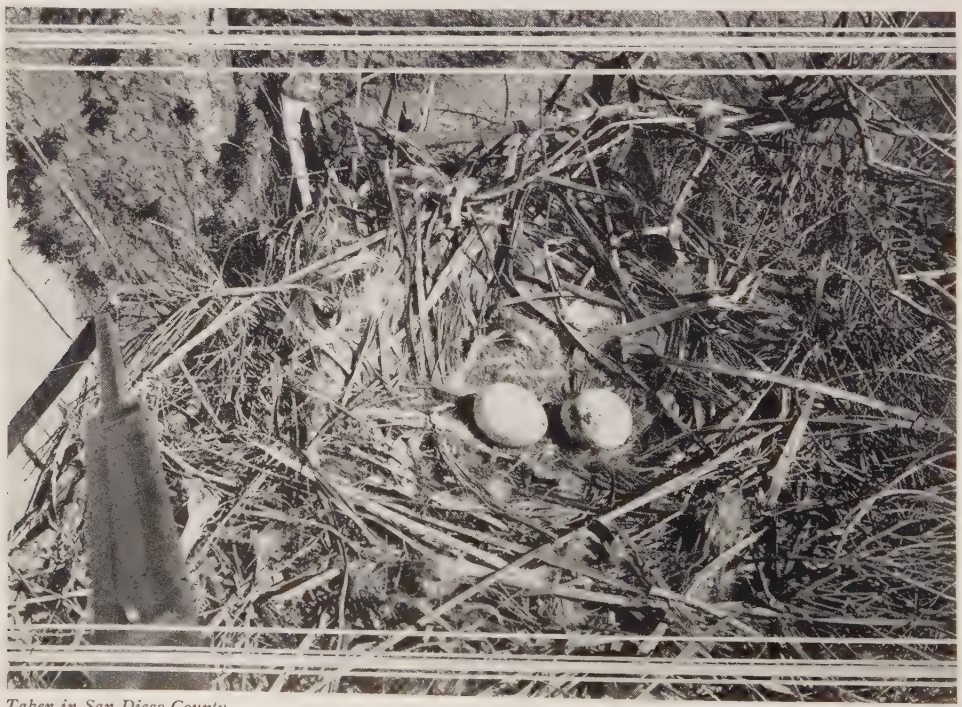
Taken in San Diego County A GOLDEN EAGLE'S NEST FROM ABOVE *Photo by the Author*

above another of a gentle and unsuspecting nature, I judge the Golden Eagle to be that bird. But doubtless this, also, is a hasty generalization.

Whereas generations of gun-fire have taught the Eagle a wholesome respect for mankind, there is no doubt that their innate ferocity, goaded by hunger, still impels them to daring feats wherever their natural prey is concerned. Not only do the eagles capture foxes, raccoons, and all other creatures capable of inflicting injury in turn, but they brave the

brute force of some of the larger animals, sheep, goats and even bucks. Mr. F. C. Willard reports a case from the Chiricahua Mountains where Golden Eagles attacked a four-point white-tailed deer, as it was floundering in the snows, and killed it by sinking their talons deeply into its back. Fawns frequently fall victims to the Eagle's claw, and a successful attack of this sort often involves keeping the mother deer at bay. It is for this reason that Eagles usually hunt in pairs; and I have been told, on what I consider good authority, that calves are sometimes killed by the combined ferocity and cunning of a robber team. In such a case, one bird devotes itself to distracting the mother cow by an aggressive mien, by hectoring and swooping, or by actual buffets of the wing. The Eagle's mate, meanwhile, is pulling down the calf; and the two birds feast when the mother's sorrow has been forgotten.

Of course the Eagles oftener subsist upon a plainer fare. Rabbits, ground squirrels, and spermophiles are consumed in enormous quantities, sometimes to the decided benefit of local agriculture; and sometimes the birds descend to snakes, lizards, and the lowly rat. Marmots are great favorites in the northern hilly sections; whereas, in more open country the birds take up the pursuit of grouse or waterfowl. Some fifteen years



Taken in San Diego County *Photo by the Author*

NEST AND EGGS OF GOLDEN EAGLE, IN SITU

Taken in Inyo County *Photo by the Author*

A THRONE FOR THE GOLDEN EAGLE
UNIVERSITY PEAK, IN THE SIERRA NEVADA MOUNTAINS

ago, Oberholser estimated[1] that the Golden Eagles of Montana, some 1450 pairs, destroyed annually 391,500 Sharp-tailed Grouse (*Pediœcetes phasianellus columbianus*—"a number that is astonishingly large, yet doubtless well within the truth."

It will be difficult, then, for us to make out a brief in defense of this royal brigand. Certainly, we cannot do so upon purely economic grounds. But there is robber blood enough in all of us to make us cry, "Brother!" when we hear the Eagle scream. It is envy and wicked folly, and not just vengeance, which leads us to strike down this winged presence of the mountains, this watcher of the deserts, and fearless companion of the sun. It is good to have something with red blood among us—or over us. And if it takes expensive food to sustain such quality, let him have it. What are grouse and ducks and rabbits, fawns, even, before the dignity of this majestic symbol! I'll take Eagles myself!

California is the ancient citadel and heart's home of the Golden Eagle. Although this storied bird occupies, or has occupied, the major portion of

[1]The North American Eagles and Their Economic Relation, by Harry C. Oberholser, Biol. Surv. Bulletin, No. 7, 1906, p. 28.

The Golden Eagle

Taken in California GOLDEN EAGLETS *Photo by Finley and Bohlman*

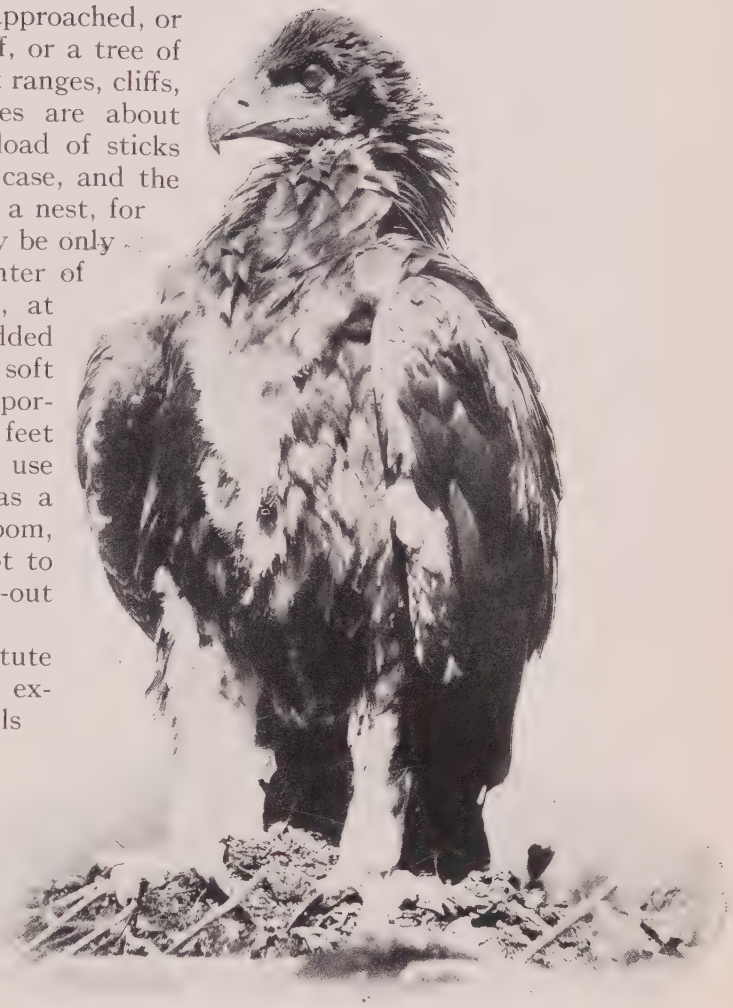
the northern hemisphere, it is probable that the Eagle was a little more abundant a generation ago in west central and southern California than it was anywhere else on earth. Its threatened disappearance within this generation has been brought about by two factors: First, the insensate use of firearms; and second, the persecutions of oölogists. We should enter a fiery brief against the latter (in spite of our own profession), were it not for the fact that an honest effort was made for several years to curb the egg-traffic. All the satisfaction the law-abiding oölogist got for abstaining from his favorite plunder was in seeing his erstwhile benevolent hen eagles shot down ruthlessly by sportsmen, idlers, and alleged indignant farmers. What was the use? Even the Fish and Game Commission gave over its futile but well meant efforts to protect this vanishing bird, and the season on Eagles is fatally open.

In California, Golden Eagles nest chiefly at moderate altitudes down almost to sea-level. The particular

Photo by F. H. Holmes

NEST OF GOLDEN EAGLE IN DIGGER PINE

site may be a hillside, easily approached, or an inaccessible niche in a cliff, or a tree of almost any sort. In the coast ranges, cliffs, white oaks, and digger pines are about equally represented. A cartload of sticks forms the foundation in any case, and the top is a platform rather than a nest, for the nesting hollow proper may be only a sharp depression in the center of the structure. This portion, at least, will be lined with shredded bark, grass, or any trashy, soft substance. The ample proportions of the top, four or five feet across, are necessitated by its use as a landing stage, as well as a dissecting room, dining room, nursery, and gymnasium,—not to mention its uses as a look-out station, or as a landmark.

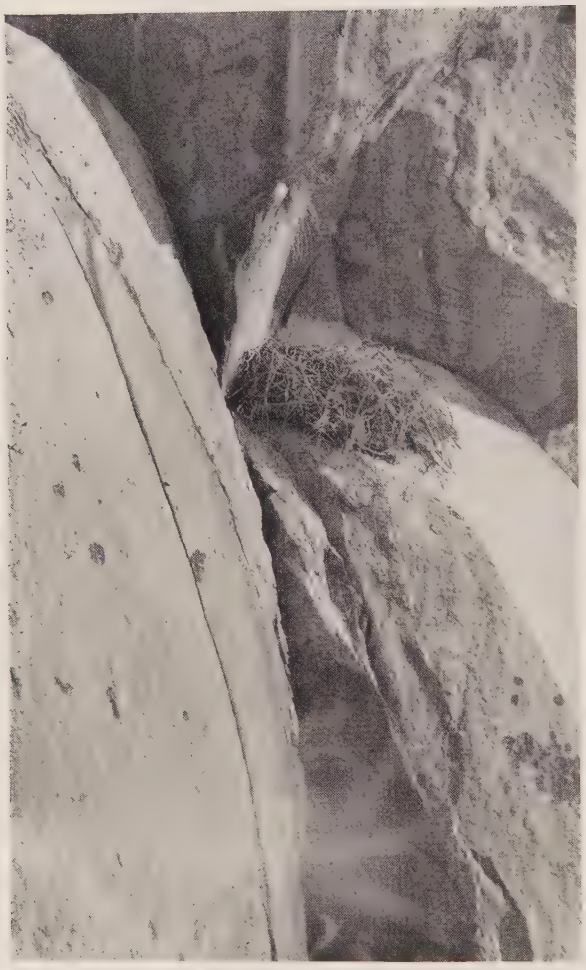


Taken in California *Photo by H. T. Bohlman and W. L. Finley*

A PRINCE OF THE ROYAL BLOOD

THE BIRD IS STILL IN THE NEST—ONE OF THE EAGLETS PREVIOUSLY SHOWN

One or two eggs constitute a set, rarely three, and very exceptionally four. The shells of the eggs, viewed from the inside, have the greenish blue cast which marks the Eagles as belonging to the Hawk division, instead of the Falcon division, of the order of *Falcones*. On the outside, these shells exhibit a marked individuality, and vary from pure white through bold spots and blotches of pale brown to a complete clouding or investiture of fawn-color. They vary greatly in size, also, "pullets' " eggs being scarcely more than half the bulk of the largest examples from mature birds. C. S. Sharp has figured an egg from Escondido which measured in inches 3.47 x 2.62, and which contained 4.10 cubic inches (.067 liters), as compared with 2.50 cu. in. of an average egg, and 2.07 cu. in. of a small egg, by no means a "runt," in the M. C. O. collection.



Taken in Riverside County *Photo by Wright M. Pierce*
A ROMANTIC NICHE

Incubation lasts upwards of thirty days, and the young when hatched appear to be all eyes (the elaboration of the "eagle eye" is a most important task in nature's preparation for this infant king), and are so weak that they cannot hold their heads up. They are covered at first with a white or pale yellowish white down, conspicuous marks to the eye of an air scout; but nature has no provision against human attack, and the Eagle fears nought else. In case of invasion, the king of birds can only lurk anxiously in the offing and give vent to his anxieties by a peculiar screaking, known throughout literature as a "scream," *cheop′ cheop′*, *tsyewk′ tsyewk′*—slowly. This is a rather pathetic and quite inadequate sound, if intimidation be intended. Indeed, on occasion, it sounds more like the meditations of a young "broiler" that it does like a master cry.

The young Eaglets require at least three months for their development, and when they do launch out into the world, they are likely to be a little wobbly for several days. Professor Loye Holmes Miller vouches[1] for the following account given him by Miss F. E. Schuman, a student in one of his biology classes: "Last summer while my father and I were extracting honey at the apiary about a mile southeast of Thacher School, Ojai, California, we noticed a golden eagle teaching its young one to fly. It was about ten o'clock. The mother started from the nest in the crags

[1] Condor, Vol. XX., p. 212.

and, roughly handling the young one, she allowed him to drop, I should say, about ninety feet, then she would swoop down under him, wings spread, and he would alight on her back. She would soar to the top of the range with him and repeat the process. One time she waited perhaps fifteen minutes between flights. I should say the farthest she let him fall was 150 feet. My father and I watched this, spellbound, for over an hour."

The case of the Golden Eagle is all the more pathetic because of the bird's attachment to its chosen haunts. Instead of running away from persecution, it can only stand its ground, within a range of half a dozen

Taken in San Luis Obispo County *Photo by the Author*

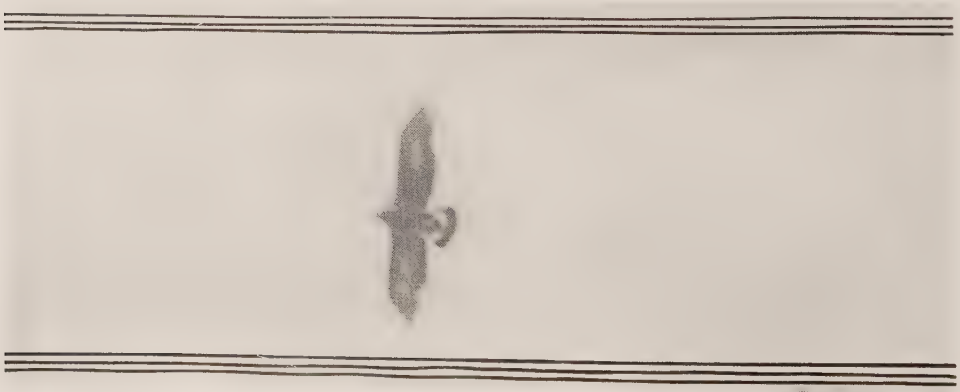
A HILLSIDE NEST

miles or so, until it is shot down. For this reason, also, it is possible to obtain an unusually accurate acquaintance with a given pair of birds, and to follow their fortunes through many seasons. It is known, therefore, that when a bird is robbed of her eggs she does not usually attempt to nest again the same season. Birds that have been persecuted change nesting sites from year to year within their range, but they are apt to come back

to the same nest upon alternate or else third years. If very much harassed, the poor birds will give over nesting altogether, rather than desert the scenes familiar from their infancy.

And what with guns, automobiles, and oölogists whose specialty is "Raptores," the Golden Eagles are a vanishing race. Since my own coming to California in the fall of 1910, I have witnessed a marked decrease in their numbers, a reduction, I should say, of three-fourths in the twelve years. In the early spring of 1911 I visited, by invitation, the country back of San Diego, long famous for Eagle nesting. We took a set from the nest figured on p. 1704 on the 23rd of February. A summary page from my field notebook under date of Feb. 25, 1911, will explain what we found:

"We spent the day exploring the mountain sides beyond Lakeside and the valley of the San Diego. We revisited several old Eagle nesting sites, four to be exact, but found no occupied nests. One colony contained four nests, believed to be the product of one pair of birds, but no eggs or signs of Eagles. Two of the nests were in good repair, and one of them had evidently been used last year. Either these birds have retired under incessant persecution or have been killed outright. One old Eagle's nest, midway of a cliff 80 feet high, had been for some years occupied by a pair of Peregrine Falcons, but even these birds were no longer in evidence. Previous to our work our host had visited two of his most promising prospects. One had been robbed by an amateur oölogist, and the other nest, although bearing evidences of recent repair, bore only stones which some idler had flung upon it. Thus, in three days of strenuous work, assisted by automobile, three covetous oölogists (ourselves) had visited eight known nesting sites of the Golden Eagle, had inspected 17 nests new or old, and had taken only one set of Eagle eggs. Query: How long will the Golden Eagle last at the present rate of decrease?"



Taken in San Luis Obispo County *Photo by the Author*

A BIRD OF THE YEAR A-WING

NOTE LIGHT PATCHES UNDER WING; AND BASAL PORTION OF TAIL WHITE

Elsewhere the sport (?) lasted a little longer. A notorious collector from the Bay Cities, ranging south by automobile as far as Ventura County, is said to have taken fifty-two eggs of the Golden Eagle in a single season, that of 1913, I believe. This was at a time when other collectors were forbidden by law to molest Eagles' eggs. Another collector, in the San Benito country, acquired a "personally taken" collection of some 150 sets, but as his work was carried on over a space of twenty-five years and was accompanied by painstaking observation and recording of notes, we have no word of censure—congratulation rather, that so important a piece of work should have been well done at a time when it could be done. And lest the writer be accused of pharisaism in this regard, he records the fact here, December, 1922, that he has taken exactly one set of Golden Eagles' eggs in California. It is enough.

No. 338

Southern Bald Eagle

A. O. U. No. 352. **Haliæëtus leucocephalus leucocephalus** (Linnæus).

Synonyms.—Bird of Washington (young). Gray Eagle (second year young). Black Eagle (first year young). White-headed Sea Eagle.

Description.—*Adult:* Head and neck all around, and tail including coverts, pure white; remaining plumage grayish brown to brownish black; with some paler edging of feathers; bill and feet yellow; claws black. *Immature*, first year: blackish with some outcropping white of cottony-based feathers; bill black; feet yellow. Second year: grayish brown or dark brown, mottled somewhat irregularly on wings and tail (centrally) with gray and white; acquiring adult characteristics by end of third year. Second year birds are somewhat larger than adults, "overgrown puppies," and were formerly described as Washington Eagles. Science outgrew this ignorance as the nation outgrew its youth. *Nestling:* Covered with grayish dusky down; a sprinkling of longer white feathers, noticeably on sides of neck; black body feathers first appearing on scapulars, notæum and crown. Adult male: length 762-914.4 (30.00-36.00); extent of wings seven feet; wing 533.4-660.4 (21.00-26.00); tail 292.1-381 (11.50-15.00); culmen about 50.8 (2.00); tarsus about 76.2 (3.00); middle toe and hind claw 69.9 (2.75). Adult female: length 863.6-1066.8 (34.00-42.00); extent seven to eight feet; wing 609.6-711.2 (24.00-28.00); tail 330.2-406.4 (13.00-16.00); culmen about 55.9 (2.20); tarsus about 88.9 (3.50); hind claw up to 50.8 (2.00).

Recognition Marks.—Largest; white head and tail of adult; half-naked tarsus distinctive in any plumage.

Nesting.—*Nest:* A bulky platform of sticks high in trees, or variously, on cliffs or headlands, near considerable bodies of water. *Eggs:* 2 or, rarely, 3; dull white or pale bluish white, with fine granular surface, unmarked but often nest-stained. Av. size 71.6 x 53.8 (2.82 x 2.127); index 75.3. Extremes 67.56-75.2 by 51.05-56.6 (2.66-2.96 by 2.01-2.23). *Season:* March 1st at sea level, April on interior lakes; one brood.

The Southern Bald Eagle

Range of *Haliæëtus leucocephalus.*—North America, chiefly in the vicinity of streams and considerable bodies of water from near the limit of trees south to Florida and Mexico.

Range of *H. l. leucocephalus.*—United States south to southern Lower California and northern Mexico; breeding throughout its range. Rare or local in arid interior and on coast of California.

Distribution in California.—Fairly common resident on the Santa Barbara Islands, and frequent visitor to the adjacent mainland coast. Of occasional occurrence in the northern interior. Has bred at Eagle Lake, at Sacramento, in Santa Clara County, and at Elsinore Lake (Riverside County).

Authorities.—Gambel (*Haliaetus leucocephalus*), Proc. Acad. Nat. Sci. Phila., iii., 1846, p. 45 (Santa Catalina, etc.); *Oberholser*, U. S. Dept. Agric., Biol. Surv. Bull., no. 27, 1906, p. 6 (economic; habits, distr., food, etc.); *Miller*, Univ. Calif. Publ. Geol., vol. vi., 1911, p. 310 (fossil); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 55.

THE PASSING of the Bald Eagle is doubtless ordained by the same factors—bravado, recklessness and revenge—which have decreed the destruction of his Golden kinsman. The human animal simply cannot abide the presence of any bird larger than a pewee; and if the natural instinct to burn up gunpowder lags, it is possible to unearth or invent a hundred tales of evil-doing on the bird's part, each quite sufficient to bolster up murderous purpose. In spite, therefore, of decades of education, in spite of beautiful statutes, the tradition still persists that every Eagle ought to be shot at sight. And slaughtered it probably will be, until the seashore is destitute as the desert, and the isles of romance as devoid of avian interest as the pages of a commercial ledger.

We will grant without debate that the Bald Eagle is a bad actor. He eats fish—a most reprehensible practice—and he occasionally captures game birds, which we would prefer to do to death by our own peculiar artistry. Worse than that, he sometimes—not often, mind you—attacks *lambs*, and has been known to kill fawns. He has assisted sick sheep in their effort to shuffle off the mortal coil; and, worst of all, he has been known to carry off babies—say in two or three really authenticated instances in our entire national history. We will not even plead that dead and dying fish have been consumed by thousands of tons to the great benefit of the national health; that birds and mammals of neutral importance are captured as often as those of economic benefit, or that distinguished services have been performed by the Eagles in freeing the land from weasels, marmots, squirrels, and other injurious species of mammals. It is idle. If the venerable dignity of the white-headed Eagle posted on a sea-cliff excites only the itching of trigger fingers; if the prowess displayed by the Eagle in pursuing and capturing swiftest-winged birds excites only a malignant envy; if, indeed, the murderer of an Eagle is to be proclaimed a hero, and allowed to bask in the sunshine of local approval; the case is

hopeless. We who enjoy nature's variety, we who appreciate nature's splendors, we who love the thrills of nature's own choosing, we who do obeisance to the Creative Infinite expressed in Snowy Egrets and Birds of Paradise and Swans and Eagles and Condors, we are a pitiful minority. Do not mind us. Kill, rob, devastate, poison, and utterly exterminate all who lift their heads above the common ruck. We shall still have left—Linnets.

Bald Eagles formerly and effectually occupied the entire continent of North America north of Mexico and south of middle Hudson Bay. They were common on the Atlantic seaboard and abundant on the coasts of Washington, British Columbia, and Alaska. They have been reduced in two centuries to perhaps a hundredth of their former numbers, and in considerable sections of the interior are no longer seen at all. Those which breed in the high North must fall back in winter before a failing food supply; and the appearance, almost certainly fortuitous, of several eagles

Taken on Santa Cruz Island *Photo by the Author*

AN UNOCCUPIED NEST

THIS STRUCTURE MEASURES 11 FEET IN DEPTH ON ITS SEA FRONT. IT HAS PROBABLY BEEN OCCUPIED INTERMITTENTLY FOR HALF A CENTURY

at once on a winter's day is no sign that the species is holding its own.

The Bald Eagle is essentially a fish-loving bird, and so is normally distributed along the seashore and about the larger lakes and streams. It was formerly found throughout the interior of this State wherever conditions were suitable, especially in the northern portion (e. g. Eagle Lake) and along the Sacramento-San Joaquin river systems. It is still found, not uncommonly, in the northwestern counties, and more sparingly at scattered points along the western sea coast. Only upon the Santa Barbara Islands, however, may the birds be rated common, that is, of general occurrence; and even here their numbers have been greatly reduced by persecution, gunfire, and destruction of their nests. The introduction of sheep upon these islands has placed overwhelming temptation in the Eagle's path, and has earned her the enmity of a very determined set of persecutors. Unless the Bald Eagle is actually protected, not alone from lawless marauders in motor boats, but from the vengeance of the sheepmen, whether owners or renters, its days are numbered.

We must speak, then, chiefly of the Eagles of the Santa Barbara Islands. Howell tells us in a recent review[1] that Eagles are no longer found upon Los Coronados, but that they are still numerous on San Clemente. They are "abundant" on San Nicolas, and common at Catalina, although less numerous than formerly; for J. G. Cooper once saw thirty birds there, chiefly immatures, at one time. A single pair holds Santa Barbara Island, and the birds are known to occur on San Miguel. They are presumed to occur, also, on Santa Rosa, but they are best known at this time from Anacapa and Santa Cruz. The nests found on Anacapa possess a special interest, because the sticks of which they are composed have to be carried over by the birds from Santa Cruz, whose nearest point is five miles away.

Regarding the food habits of the island birds it is scarcely safe to generalize. Their main dependence must formerly have been fish, and these, no doubt, were chiefly secured by snatching from the surface of the water. Ospreys do not abound in this section, and it is doubtful if the well-known parasitism practiced by the Bald Eagle upon the Osprey has been in vogue here. Dr. Cooper says of a northern bird, "I never saw it dive for a fish * * * but have seen it settle for a moment on the water to secure a dead fish, closing its wings." Cooper also notes the capture of a flying fish in midair, by an island eagle—something of a feat! Others have seen the Eagle plunge into the sea as boldly as an Osprey, even to the point of complete submergence. The Eagle occasionally does patrol duty on the mainland shore, after the fashion of hawk or vulture, but he spends more time as a sentinel in some commanding position

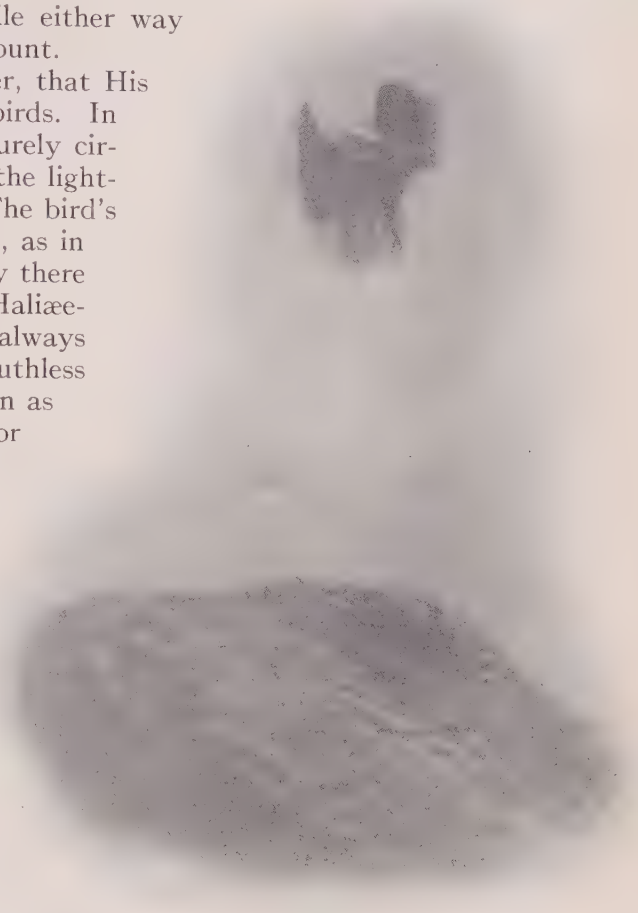
[1] Pac. Coast Avifauna, No. 12, A. B. Howell (1917), p. 55.

on cliff or tree. The eagle eye is proverbial, little happening along the beach for a mile either way of which the bird does not take account.

There can be little doubt, either, that His Majesty helps himself freely to sea-birds. In seeing an Eagle soaring aloft in leisurely circles, an observer might not suspect the lightning speed of which it is capable. The bird's very size serves to disguise its speed, as in the case of an ocean liner. Probably there is no sea-fowl which can escape the Haliæetine desire, save by diving, and not always then, for the Eagle has perfected a ruthless follow-up system, and strikes as often as the diver appears at the surface for breath, until his end is gained.

The gulls stand in mortal awe of the Bald Eagle, and I have heard a breeding colony of them utter a multitudinous wail of apprehension, which made the heart of the human listener stand still. Protest is idle, however. As well might the apples on the bough protest the hand of the picker.

Not impossibly the gentle Eagle is forsaking this ancient sport for the more profitable task of sheep-raising. At least in lambing time his services as accoucheur are said to be in constant requisition. I don't know. I never witnessed anything overt myself; but the presence of two carcasses of lambs a long while dead in the substructure of an eagle's nest on Santa Cruz Island, looked, to say the least, "mighty suspicious." On the other hand, Mr. Howland, for fifteen years a resident on San Clemente, told Mr. Howell that he had never seen an Eagle carrying a lamb but once, and that one had died a natural death; and he felt quite sure that the birds did not molest his sheep at all.



Taken on Santa Cruz Island *Photo by the Author*

A STARTLED EAGLE

A CONSIDERABLE SPACE COVERED BY AN INVOLUNTARY REACTION OF FRIGHT

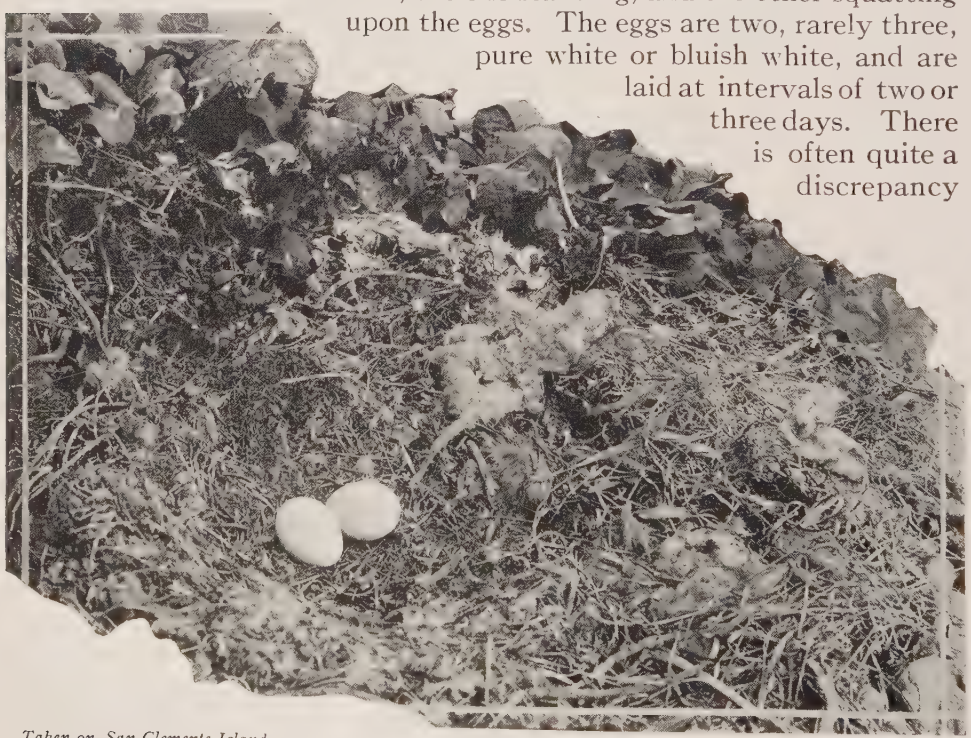
Nidification begins early, but not nearly so early as in Florida and along the Gulf Coast, where eggs are said to be laid in December, or even

early November. The average date for fresh eggs on the Santa Barbara Islands is March 1st.

The nest, which is an immense pile of sticks, lined with fine twigs and grass, and other soft substances, is usually placed on some lesser promontory or a sharp, inaccessible ridge near the ocean. The historic pile figured on page 1713 measured twelve feet by six on top, the larger diameter being along the crest of the ridge; and contained no less than two wagonloads of accumulated materials. Another, from which the M. C. O. took two heavily incubated eggs on the 20th of March, 1919, was built up on a slanting ridge, so that the lower or seaward face was fourteen feet in depth, although the top of the nest was only four feet by six.

Occasionally nests are built in pine trees, and this is the almost invariable custom in the interior. Not only are the trees in which they are built usually hard to climb, but it is often difficult, or well nigh impossible, to pass the bulging sides of the nest so as to obtain access to the eggs themselves.

Both sexes share the duty of incubation, which lasts something over a month, and the two birds are occasionally to be seen together at the nest, the one standing, and the other squatting upon the eggs. The eggs are two, rarely three, pure white or bluish white, and are laid at intervals of two or three days. There is often quite a discrepancy



Taken on San Clemente Island *Photo by D. R. Dickey*

in the size of the eggs, the larger presumably being laid first. If the eggs are destroyed, the birds will not nest again until the following year. The young, when hatched, remain in the nest three or four months before they are able to fly, and even then sometimes require considerable urging on the part of their ambitious parents.

It is evident that those who live in the vicinity of an Eagle's nest must sometimes become very much attached to these stately birds, and view their comings and goings with unfailing interest. In a few instances the protection of the local eagles is a matter of pride, and any one who attempted to molest one of them would get into serious trouble with its human neighbors. This is quite as it should be. The people of this State could far better afford to reimburse the owners of poultry and sheep for some trifling losses inflicted upon them, than they could to be deprived of the majestic presence of these symbolic birds.

Nothing, outside of human woes, could be sadder than the sight of an Eagle in a cage. Captivity is irksome at best, and the contemplation of it is seldom edifying. Yet the sight of a monkey is not so bad. Ropes and sticks and wire nettings are sources of infinite amusement to Jocko, as to his spectators. Bruin enjoys his fare of peanuts and bonbons, and might not wish to exchange his snug pit of concrete for the vicissitudes of mountain life. Caged song-birds, even, have always artistic relief for their wounded spirit. But for the captive Eagle there is no consolation whatever. Befouled, disheveled, sick at heart, and aching with imprisoned forces, he can only scowl in sullen disdain at his persecutors, or mope in abject misery before them. The sight of such a captive degrades the onlooker, as it outrages every sentiment of justice and fitness. We have no right to imprison creatures whose lives we cannot make reasonably happy.

No. 339

California Condor

A. O. U. No. 324. **Gymnogyps californianus** (Shaw).

Synonym.—California Vulture.

Description.—*Adult:* General color dull black, or sooty brownish black, the feathers of back and wings browning on edges and tips, the ruff of lance-linear feathers glossy, the central portions of these and similar feathers distributed over the throat and breast dull gray; the inner half of the greater wing-coverts silvery gray on concealed portions, with broad white tips; the inner secondaries similarly but irregularly gray and with white on concealed portion of outer web; the axillars and central portion of under wing-coverts pure white, forming a conspicuous patch some two feet in length;

head and neck naked, except on forehead and face, narrowly, where close-set black feathers persistent; the skin of head and neck orange or orange-red in life; bill chiefly orange-colored, crossed at the eyes with a black band; feet and legs rosy flesh-colored. Young birds up to the fourth year lack the white markings and have more decided brown edgings to the feathers; neck of young birds is more or less covered with sooty down, and the bill and naked skin of head are dusky. Length of adult 1219.2-1371.6 (4 to 4½ feet); extent 2743-2794 (9-11 feet); weight 20-25 pounds; wing 762-914.4 (30.00-36.00); tail 381-457.2 (15.00-18.00); bill from nostril including unfeathered portion of cere 69.9 (2.75); the culmen proper 38.1 (1.50); tarsus 115.6-140.9 (4.50-5.50).

Recognition Marks.—Giant size; larger than Turkey Vulture or Eagle, but *white under wing-coverts* the best field mark.

Nesting.—Single *egg*, deposited on ledge or in cranny of inaccessible cliff, formerly also in hollow tree or log; white with a bluish or greenish, rarely a creamy tinge, unmarked; elongate ovate. Av. size 114.3 x 63.5 (4.50 x 2.50). *Season:* January–March; one chick.

General Range.—The south central coast ranges of California and the mountains of northern Lower California. Formerly much more abundant and ranging north at least to the Columbia River and casually east of the Sierras (Owens Valley) and Arizona.

Distribution in California.—Represented in dwindling numbers, and now confined to south central coast ranges from southern San Benito and Monterey counties south to northern Los Angeles County. Occurrences along the Sierran foothills are probably to be interpreted as wanderings of birds resident in the inner coastal ranges. Unquestionably less than 100 birds, probably not more than 40, still preserved in California.

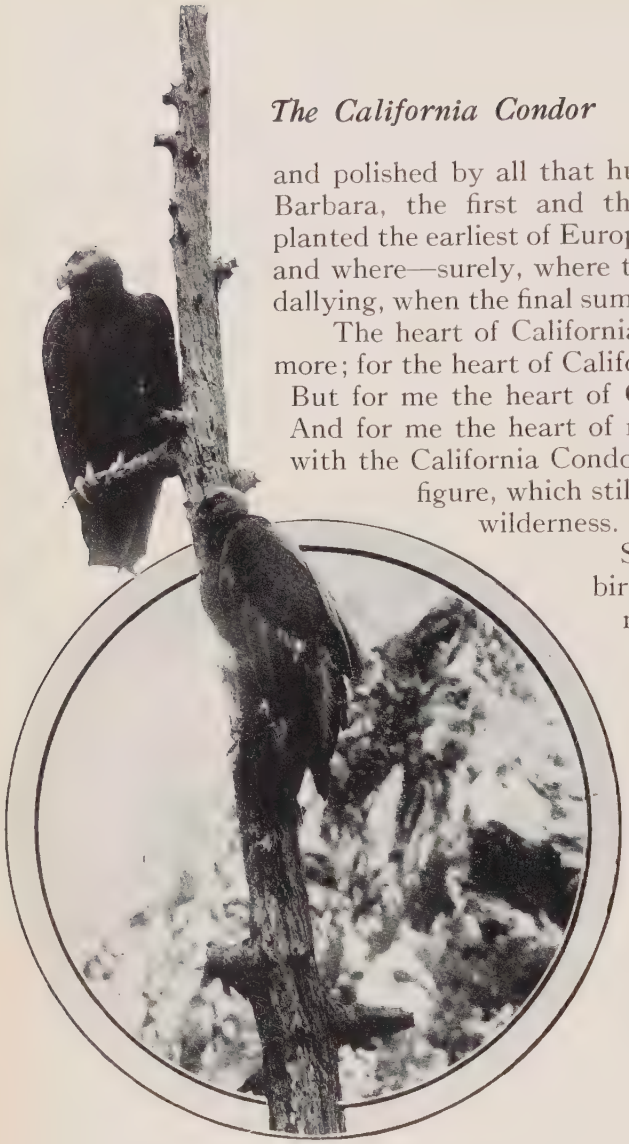
Authorities.—**Shaw** (*Vultur californianus*), Nat. Misc., ix., 1797, pl. 301 (orig. desc.; "Coast of Calif."); *Gambel*, Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1847, p. 25 (Calif.; habits, food); *Ridgway*, Bull. Nutt. Orn. Club, vol. v., 1880, pp. 79. 82 (crit.; nomencl.; meas., comparison with S. Am. Condor); *Miller*, Univ. Calif. Publ. Geol., vol. vi., 1910, p. 6 (fossil); *Finley*, Condor, vol. viii., 1906, p. 135, figs. (desc. and photos of nest, egg, young, etc.; habits); *ibid.*, vol. x., 1908, p. 5 (photos; meas., weights, etc.); *ibid.*, vol. x., p. 59 (photos; habits, etc.).

IF I WERE to propound the question, Where is the heart of California? there would be a dozen instant and clamorous voices, each with a valid claim to urge. The heart of California? It is the Golden Gate, most romantic of portals, through which the Argonauts entered the land of dreams, thronged now with the roaring traffic of Occident and Ind. It is San Francisco, the passionate, the beloved, the furnace-tried, the unconquerable, now conquering herself and bearing rule with the imperiousness of self-possession. It is the Valley of the Sacramento, where the Capital City sits among her sun-burned wheat-fields, or surveys in dismay the lessening population of her winter wild geese. It is Placerville, or Angels' Camp, where the gold-seekers tore at the face of Mother Earth and prayed for fortune, or fought and drank and swore and forgot, or found reality, according to their kind. It is Los Angeles, that uncounted

Taken in San Luis Obispo County *Photo by the Author*

THE CONDOR'S FIEF

congeries of human ants and bees and butterflies poured out eternal upon the sunlit plain,—Los Angeles, the storied, the vaunting, the boundlessly achieving, the insatiable, at once the asylum, the laboratory, the drawing-room, and the ultimate destiny of the human race. It is Berkeley and Stanford, twin eminences of learning, where the endless golden tide of youth seeks oblation until the marvel is that the altars of wisdom are not long since sated. It is the Desert, weird, empty, forlorn—or God-filled—according to your mood. Surely it is the desert where, if but a horned toad scuttles, you are startled; where, at the least, your own heart's beating fills you with a nameless terror, or else an exalted joy—according to your kind. It is the Sierra Nevada, heart of the world, where lightnings vie with cold snows to crown the dauntless monarchs of space and time. Here is sanctuary and surcease of sorrow, and a world brought near to its Maker. It is Monterey, beloved of the Mission Fathers, the clearing house of history, beloved of artists, too, the authentic meeting place of earth and sea and sky. It is Santa Barbara, the sheltered, the favored, the hospitable, flawless gem of Nature's workshop, arabesqued



Taken in Los Angeles County *Photo by H. T. Bohlman and W. L. Finley*

CALIFORNIA CONDORS

and polished by all that human ingenuity may contrive,—Santa Barbara, the first and the last, where stout-hearted Cabrillo planted the earliest of European footsteps upon Californian shores, and where—surely, where the last of human footsteps will linger, dallying, when the final summons calls the race to its eternal home.

The heart of California is here. Aye, and in a dozen places more; for the heart of California is very large, and it is indivisible. But for me the heart of California lies in the Condor country. And for me the heart of mystery, of wonder, and of desire lies with the California Condor, that majestic and almost legendary figure, which still haunts the fastnesses of our lessening wilderness.

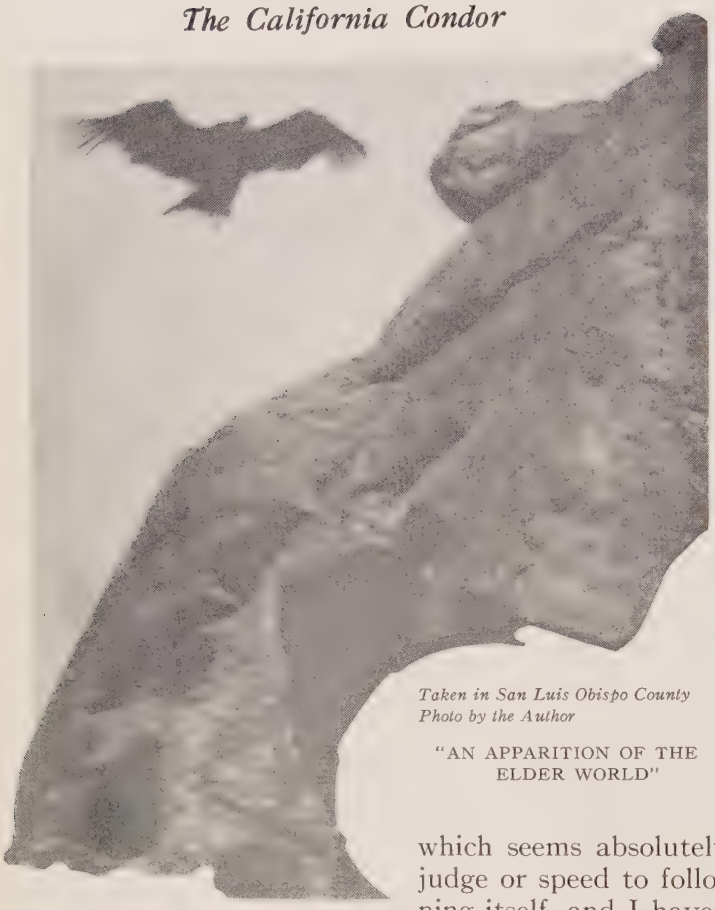
So many of our California writers upon birds, contributors to "The Condor" magazine, and the like, have been at pains to conduct their readers through enchanted mazes of approach, that for once I shall try to follow their example. It is natural that bankers off on vacations, and clerks on a hard-earned holiday, should invest every circumstance of their outing with the same glamor of interest which attaches to the winning of some oölogical trophy, or capture of a *rara avis* which really marked the journey's end. Because of this—shall we say beatific fallacy?—we have reams of scenic descriptions and half-reams of camp-fire conversations to quires of bird descriptions and half-sheets of ornithological character study. It is ever the way of the human race to be most concerned with itself and its own reactions. We acquiesce.

It was with a happy heart, then, that the writer accepted, early in April, 1911, an invitation to visit a Condor's eyrie hidden in the heart of eastern San Luis Obispo County. My guides were interested to prove that Condors, or at least *a* Condor, laid a white or creamy white egg, instead of the stereotyped pale bluish green of scientific repute. Our course lay over the half-timbered foothills which compose one of the inner

ranges of the coastal system, and our means of conveyance was a two-wheeled cart plus a saddle horse, for there were three in the party. The cattle country was at its lushest stage of pasturage. Grass, so fresh and luxuriant that one almost envied the stolid steers, gave way in spots and acre-wide streaks to flowers of gorgeous hue. There were blue-eyes and brodæas (a little late) and shooting stars (a little early), but most of all there were blue lupines in billows, escholtzias that set the earth aflame, and owl's clover that quenched it again with purple torrents,—around every turn in the hills a conspiracy of elemental pyrotechnics! As the mountains strengthened, the pasture gave way to chaparral, at first chamise, the sturdy homespun of California, then manzanita and dotting live oaks, and ceanothus an endless host. Soon digger pines, quaintest of evergreens, waved their ghostly arms or whispered to top-heavy neighbors. And the view! Looking backward to the north as far as eye could reach was an endless panorama of rolling hills, hills varied by yellow escarpments, blue timber in belts, dark green scumble of chaparral, and here and there great blocks or ribbons of clearest grass green. We crossed ranches, or consolidated holdings, boasting 30,000 acres each, 40,000, and then 60,000. We had escaped from civilization.

After a night and a half day spent with an old settler in the enjoyment of old-fashioned hospitality, in form at least forty years behind the times, and in spirit a half millenium ahead of common practice, we set out on foot with a single pack-horse and threaded for half a day the devious trails which penetrate a buckthorn wilderness, and which work gradually toward the heart of the hills where the Condor has his lair.

A night on the ground and a dip in a brawling stream makes us fit for Condor-gazing an hour before daybreak; but the morning is foggy and we cannot see well. Breakfast is not only *al fresco* but *al freezo*, because we are not advertising our presence by tell-tale fires. Turkey Vultures abound, and they circle about an elevated chimney of rock which projects above the climbing sea of chaparral. They weary the attention, strained upon larger quarry, and we do not escape from false alarms until we have battled for an hour with the thorny jungle, and have gained the vantage point of a huge boulder, a fallen fragment of mountain which overtops the chaparral. By and by Kelly descries a Condor some 2000 feet above, distinguishable rather by sturdiness of motion than by size from the nearer "Buzzards." The great bird is soaring over the heights of his ancestral castle, but he soon settles in the top of a pine tree where we can study him with binoculars and telescope. We have a pretty good idea that his optical apparatus is better than ours at that, for he is ill at ease and presently casts off again. Soon he is joined by another bird, and as they wheel and pitch in the clearing atmosphere,



Taken in San Luis Obispo County
Photo by the Author

"AN APPARITION OF THE ELDER WORLD"

we note unmistakably the great white patches under the wings and the golden head of each. The unfulfilled desire of decades has been met. We have seen the fabled bird and pronounced him genuine. But there is business afoot and scant time for reflection. The birds drift over toward us, undoubtedly upon a tour of inspection. And there is a pretty passage at arms between them, a discussion of our demerits, perhaps, in animated sign language. They retire to a pinnacle perch and cogitate; but not for long. The morning advances, and duty rides the Gymnogypsian conscience. A saucy Prairie Falcon pursues each ancient bird in turn, but the Condor always avoids the stroke by a downward swerve which seems absolutely beyond the Falcon's power to judge or speed to follow. The Falcon's stroke is lightning itself, and I have seen one punish a Golden Eagle unmercifully, but there are three birds that he cannot touch, a Raven, a Turkey Vulture, and a Condor.

As we watch the evolutions of this pair, they are suddenly joined by another bird, an all-black fellow, as large, to all appearance, as a Condor,—a youngster, perhaps, only a decade or so of age. These three gyrate together amicably enough at first, but presently the stranger (?) is hustled off the stage. The father recalls that an elder son has no proper place in contemporary family life. Later, one of the original pair is lost to sight behind an angle in the cliff whose recesses we cannot discern, although we see the wall beyond. We hold our breath. But no; he, or she, soon emerges, and there is more gyration, a little tedious now. O La! La! when will they get down to business? They disappear over the mountain instead.

But later, one returns—makes straight for the recess already noted

in the cliff, and is lost to view. One minute, two, three, elapses. It has happened! She's on, boys!

Only two thousand feet above us; but if I were to stop to rehearse to you the arduous details of that climb, and of our sufferings, camera-laden, poked, prodded, buffeted, and gouged, as we made our way upward through an all but impenetrable thicket of buckthorn, you would chuck this volume into the fire-place and bolt for the door. It is yours to gather only the sweets. The actual foot of that rock-wall was sweet. We could have kissed it or bathed it with our tears. The half-cylinder-shaped wall was a promising place, stately and frowning not only, but full of rifts and caves, soft places in the sandstone scored out by the elements, or once occupied by a softer substance now decayed or leached out. We peered cautiously around the side where we had seen the Condor disappear, but we could not see all of the wall nearest us. Kelly, therefore, crossed to the opposite base of the curve and looked intently while

Photo by the Author

"THE HEAD OF A CONDOR THRUST ANXIOUSLY FORTH"

I shouted. Again and again I shouted, but no bird appeared. Finally Kelly caught a flash of color at the mouth of an obscure hole far up the cliff-side. He called me over and I confirmed it —the head of a Condor thrust anxiously forth from the mouth of the hole, and then withdrawn—a hole so small that I should not have looked for a falcon in it.

We hastened back for our photographic gear, which had been left a hundred yards behind, and prepared to ascend to the Vulture's nest with Graflex set. Fortunately, the ascent was not difficult, and a projecting shoulder which bore an oak tree some fifteen feet below the nest-hole afforded a vantage ground for photography. When all set, and geared up to about 1/500 (of a second), I said to Kelly, "When you are ready, you may fire." Whereupon he let loose a torrent of catcalls. An anxious head instantly appeared, and I, instead of Kelly, "fired." Again, I "got" her, head and shoulders out, but the bird was loth to come forth, and retreated ever and again. Finally, after a bit of a struggle, she pitched out, and I noted that in the act of emerging she quite filled the entrance way. It was an actual squeeze for her to get in and out of that nest. I blazed away, of course, but the range was too close for the light—and the plate. [Indeed, the writer will have to confess right here that on account of a lot of deteriorated plates, the photographic result of the Condor expedition was a fizzle. Fortunately, the superb work done by Messrs. Finley and Bohlman in the Sierra Madre Mountains leaves nothing to be done or desired. Our bird lighted not over sixty feet away, but she sat in the shade where I could do nothing with her. Hark to the note of the disappointed professional. She was adorable, of course. Of that anon. But why should we want to do anything to birds or with them?]

Kelly now addressed himself to an examination of the nest, which could be best reached by a circuitous course from above; but while he was busy aloft with the tackle I heard an ominous sound, something between a hiss and a squall, proceeding from the depths of the rock. "Too late!" I shouted. It was even so; for a squab of *Gymnogyps*, instead of a white egg, occupied the cave. I examined the situation a few minutes later. The aperture of the nesting cave was midway of the face of a sloping stretch of sandstone, not too steep, perhaps, for inspection without the aid of a rope, but too steep for comfortable work. The entrance was just twelve inches high in the clear and nineteen inches wide; but the struggles of the emerging birds had broken out fragments of the thin wall on each side, so that three inches of this total width was plainly "artificial." This opening gave access to a lens-shaped cavity some six feet in horizontal depth by ten in length and two or two and a half feet high in the clear. The floor was of fine dry sand several inches in depth, and upon this at the remotest distance a baby Condor hissed and roared. The infant was perhaps four times as large as the egg from which he had emerged, and since he held his head up well, we judged that he might have been ten days or perhaps two weeks old. He was clad in a downy jacket of sordid white, and his bill and forehead were of a yellowish flesh-color. The place was somewhat odoriferous, but not excessively so,

and I should judge that the nature of the floor, dry sand, would ensure an exceptionally sanitary condition.

The fragments of the shell were examined, and these were certainly of a creamy white color, not pale niagara green, as is usual with this species.

The mother bird (supposedly) sat quietly, but not indifferently, through all these proceedings. There was an air of gentle breeding and dignity about this bird which not even the bizarre coloration of her head-dress could destroy. Indeed, the head with its orange-colored beak and frontal plate, crossed at the eyes with a black band, sits rather like a jewel in its setting of a shiny black ruff; while the feet and legs, of a shining flesh-color, stand out again in high relief as the bird perches. Although the bird fled at our closer photographic approach, she did not quit the neighborhood nor did she attempt to enter the nest. Instead, she gyrated about, or swept to and fro near the entrance in solicitous fashion. It is worthy of remark that the Turkey Vultures were abundant about these cliffs, and that the Condor paid no heed whatever to them. One inquisitive Turkey swept in repeatedly, passing closer to the nest than ever the mother had done, and I looked for trouble: but the gentle lady gave no appearance of resentment. At a later time, however, when we were preparing to quit the place, an ominous rushing sound, a war of wings, caused us to look up in apprehension. A Condor, presumably the male, was pursuing an entirely black bird, doubtless the intruder of the morning, and although the youngster managed to elude a stroke, he rued his rashness for a good half-mile. Family discipline must be maintained in even a gentle breed.

The foregoing account of a Condor's nesting is confessedly a rather prosaic affair. Nothing very spectacular happened. We returned *sans* egg, *sans* skin (thank God!) and, as the event proved, *sans* photographs, but we brought the Condor away in our hearts. The following "estimate," derived from many sources, but chiefly from two, is hardly the impersonal judgment of science. It is, rather, the warm-blooded appreciation of one who has been taught reverence by personal contact with one of the outstanding characters of the bird-world. I am not ashamed to have fallen in love with so gentle a ghoul; and though I should not choose to dine with him, I am assured that if I did, my brother would not crowd me nor cheat me of my portion. And who are we that we should sit in judgment upon a brother who takes his meat a bit rarer than our own? A dead cow is, after all, a dead cow, is it not? And what if he does not kill his own meat. Do you? Or do you, like him, meekly accept from the gods of circumstance the meats which have been provided? "Government certified!" Fiddlesticks! The Condor's meat is certified by the sun.

Supplemental to nature, my two chief sources of information and opinion regarding the Condor are, first, the remarkable series of articles written by Mr. William L. Finley for "The Condor,"[1] and, second, a manuscript placed in my hands by Mr. Claude C. L. Brown, formerly of Shandon. On the 10th of March, 1906, Messrs. W. L. Finley, Joseph Grinnell, and Walter P. Taylor found a Condor's egg within twelve days of hatching, on a secluded ledge in the Sierra Madre Mountains. On several later occasions Mr. Finley, accompanied by his life-long partner in adventures photographic, Mr. Herman T. Bohlman, of Portland, Oregon, returned to photograph the young chick and to chronicle its development. This bird, named "General," was finally carried off to Portland for further study, and thence eventually found its way to the New York Zoo, where it thrived for some years. It is a matter for the deepest congratulation that such a painstaking and rewarding piece of work could have been carried out under competent management.

Taken in Los Angeles County *Photo by W. L. Finley and H. T. Bohlman*
STILL ANXIOUS

Our second source book is the manuscript already mentioned, an essay upon the Condor which was very generously placed at my disposal when, in 1911, its author, still a young man, quitted the scene of his former labors. Mr. Brown had exceptional opportunity for study, near his birthplace, as well as exceptional enthusiasm for his task, and I attach great importance to much which he has to offer. In both these cases men who came to have an intimate knowledge of the Condor felt for the bird not only admiration, but a genuine affection, such as we might display toward a trusted dog or faithful horse, doubtless less than human, but assuredly more than brute.

It is not from the mere circumstance of the bird's rarity, then, that we approach the study of the Condor with a feeling of admiration akin to awe, for the Condor is first of all a gentleman—or must we say a gentle-bird? Although quite the largest of flying birds, not being exceeded in

[1] "Life History of the California Condor," Four Parts: Vol. VIII., Nov. 1906; Vol. X., Jan. 1908; Vol. X., March, 1908; Vol. XII., Jan. 1910—all leading articles.

this respect even by the more famed and more abundant South American Condor (*Sarcorhamphus gryphus*), and powerful of beak and foot, there is no record of the Condor's having offered a human being any indignity unless brought to bay at close quarters. Finley and Bohlman took a newly hatched chick from under its mother and restored it again without even being struck at. Although the little fellow did fight savagely in his earlier weeks, it was only nature's customary device for working up muscle. Later, as Finley testifies, this same youngster became as gentle as a kitten and although he was fond of strenuous play, a tug of war with a rope being one of his favorite diversions, he was careful not to hurt the fingers of his kindly captors. He nuzzled and nibbled harmlessly at the outstretched hand, whereas he could strip the flesh off a beef bone and leave beak marks on it.

Brown testifies that he has seen Condors, Turkey Vultures, and coyotes feeding simultaneously upon a carcass. The Condor was king of the feast, but he made no attempt to drive off the lesser fry,—seemed generously willing, rather, that they should share. The Vultures, in turn, appear to cherish a certain esteem for their greater brethren. Time and again Brown has seen the Turkey Vultures sally forth from their rookery by the dozen or score to greet their homing kinsmen, circling about them, and appearing to act as a sort of escort or guard of honor for returning royalty. And at a time when the buzzards are wrangling and crowding each other off the roost, the Condor sits by in calm dignity. He is no brawler.

To our astonishment, we learn that Condors take fastidious care of their persons. They are fond of the water, and after a bath will hang out their wings to dry. This operation over with, they primp and preen themselves by the hour. Of course, much of this care is that of a good mechanic, who must "look after the machine." A Condor is a very special sort of airplane, and whatever the fuel he burns—and it must be confessed that much of it is low grade—the engine has to be kept clean. Nature supplies the cylinders, the struts and guy-wires, but the Condor attends to the upkeep. Every element in rudder or aileron must be kept in perfectly serviceable condition. So the bird nibbles and strokes and varnishes and adjusts—what wonder if he spends hours at it!

It is not certain that the Condor prefers its meat rare, either. Finley's "General" was fed on fresh beef, a pound a day, and he promptly rejected anything tainted. His master couldn't put anything over on him, and from a mixed lot of food which included beef and squirrel, the bird selected only the former. One wonders whether the acceptance of the, to us, repulsive diet of carrion was not dictated rather by the Condor's innate gentleness of character than by indolence or "degeneracy."

Taken in Los Angeles County *Photo by Finley and Bohlman*

"GENERAL," AGED 54 DAYS

Seize and grasp he cannot. His feet, though large and powerful, have stubby claws. Kill he will not—and there you have it. Really gentle folk must often sit at the second table simply because they do cherish their integrity.

The Condor, though neither quarrelsome nor tyrannical, will not submit to hectoring. Brown details an instance where a jealous Eagle, a "Golden" it was, became increasingly offensive to a peaceable group of Condors, until at last he struck one of them. Of course, the smaller the bully the greater the advantage in the air game. But something had to be done. The three Condors retired down the ridge for consultation. The Eagle, meanwhile, puffed with pride, and believing himself victorious, seated himself in the topmost bough of a pine tree and listened to the murmured applause of the dicky birds. His eye must have been turned patronizingly downward, for presently a black thunderbolt struck him unawares and sent him crashing heels over crown down into the lower branches. But the Eagle was game. Screaming with rage, he started to mount, intent on taking vengeance upon his pursuers. The Condors, however, had thought that all out, and while the Eagle was dodging one thunderbolt the other two were qualifying for position. It was too much, and the reputed "king of birds" fled the country.

The Condor is monarch of the air. We cannot say that there are not swifter birds or more agile birds, but there are none among land birds in whom powers of endurance have been more fully developed, or who have achieved a mastery more unquestioned. Apart from the mechanics of gliding flight, a matter which we have discussed elsewhere in these pages, there remain the two marvels of majesty and endurance. We shall prob-

ably never know how long a Condor can stay aloft without replenishing his "fuel tank," but it would probably be several days, not impossibly several weeks—for whoever heard of a Vulture starving to death? The normal habit would appear to be a feast of two or three days' duration, and at whatever necessary distance from home, followed by a loafing time of a week or so spent upon the ancestral ledges. Even then, the bird takes the air daily for practice or for joy, but it is doubtful if his quest for food is a serious one within a week after a big feed. The margin of safety, therefore, must certainly be very much longer.

Of course, in such an "endurance plane" as this, economy of effort is reduced to its lowest terms. Propulsive effort, wing-flapping, is rare, useful only for emergencies. The normal course is sailing, in great circles, so effortless that the observer loses the sense of it. Indeed, if our theory of gliding flight is the correct one, it is the wind that does the work and all the bird does is to guide the rudder or adjust the aileron. Mileage doesn't matter, "gas" is cheap (if obtainable). There are no speed cops in the highways of the upper air. Sail on! Sail on!

Or, if you insist upon knowing something of the "model," before you will observe the action, know, then, that a full-grown Condor, normally ballasted, weighs about 20 pounds. Exceptional birds have weighed 26 pounds, but these were probably killed near a carcass. The wings are relatively short and rounded, with very widely separated tips. The flexibility of these wing-tips guarantees ease and safety in banking, for were they more rigid, something, whether bone or quill, would give way under the strain of a twenty-pound projectile doing a hairpin turn at, say, sixty miles per hour. In efforts to express the grandeur of the bird's presence and its impressive size, the Condor's wing-spread has often been exaggerated. According to Mr. Frank Stephens, "a bird that measures ten feet, laid on its back on the floor and marked at wing tips without really stretching the bird, is an exceptionally large bird." Nine feet is a fairer average. Whether there have actually been specimens which would go eleven feet, we are not prepared to say.

Of course such a large "plane" requires a considerable field for a take-off. The Condor, starting from the level ground, makes a little run and flaps vigorously in order to get under way. In the earlier days, advantage was taken of this necessity by cattle men or at least by mischievous cowboys, who would build a fence around a carcass. The Vulture, unable to resist the temptation to feast, would eventually settle within the narrow enclosure and could be captured with a rush before he had time to clamber out. It is for this reason, no doubt, that the Condor's lighting range includes only very open country or very rough country, where the bird can take the air simply by pitching forward. Once a-wing the bird fears

Taken in Los Angeles County
Photo by W. L. Finley and H. T. Bohlman

SECURING A FOOTING

neither accident nor foe; but with wings set rigidly, so far as support is concerned, he quarters back and forth across the face of the cliff with never a flicker of propulsive effort, or else rises in great circles to whatever realm he pleases of upper air. If the hunting ground be a distant one, the Condor will rise to a considerable height,—say 2000 or 3000 feet above the mountain top; and then, with set wings, glide directly forward down a slope with an incredibly low gradient, depending, of course, upon the direction and velocity of the wind, and so swiftly that he will pass out of range of a good field telescope within ten minutes.

There is no more majestic spectacle in the bird world than that afforded by this Condor glide. It is as rigid, as inexorable, as fundamental as the law of gravitation itself. Once, and only once in a residence of twelve years, have we seen a Condor at Los Colibris. It was flying due south, and since it was at an elevation of two or three thousand feet, it should have made Santa Cruz Island if the wind held, without shifting a feather. Such marvelous specialization, however, carries with it certain penalties. Just because the sails of this bird are so accurately trimmed for the utilization of light breezes, the craft itself is unable to make headway against a strong wind. Not even by flapping can the Condor negotiate a breeze above a certain intensity. What the bird does in such an emergency is best told by Brown, who was once present on a quite critical occasion. Telescope in hand, the bird-watcher was resting upon a certain low crest about a mile northeast of the Condor cliffs, which here furnish a portion of the main crest of the San Juan range. Presently he descried four Condors approaching from the far northeast, but before they came up a smart breeze sprang up from the southwest, and presently it whistled over the peaks with increasing fury. The birds were baffled on the very last mile of their approach. They tacked back and forth, down wind, or struggled valiantly in the teeth of the gale, only to be swept away again and again. The cold sea breeze had it in for them, and though it was only mid-afternoon, it began to look to the observer like a

case of sleeping out that night. But off to the southeastward some twenty or thirty miles, the Carisso plains lay baking in the sun. The focal point of this great oven was sending up a huge column of heated air, as evidenced by clouds slowly revolving at the height of a mile or so above the plain. What followed can best be given in Mr. Brown's own words: "Presently one of the Condors gave up the fight, sailed a mile or so to the eastward, and, after circling to gain elevation, made away in a bee-line for the southeast. In a short time the other three went through the same manoeuver and followed after their companion. I now brought my telescope into action and I never took the glass off the birds although they became mere specks in the sky. The Condors did not swerve from their course until they entered the spiral cloud. Upon striking that ascending column of air they rose rapidly, apparently without effort, as a balloon might rise, being now and again lost to view in the fleecy folds of ascending vapor, until within an incredibly short space of time they emerged above the clouds, into a higher region of absolute clearness, say three miles above the earth. Here they must have found themselves well above and quite free from the lower currents of air which had plagued them, for now they sailed straight to the westward, descended and—glided triumphantly homeward on the wings of their ancient enemy, the southwest gale!

"I do not think that more than thirty minutes had elapsed from the time the Condors gave up the fight till they were safely at roost in their rookery; yet these birds must have traveled somewhere from fifty to seventy miles to accomplish their purpose, and the whole performance took place without the flap of a wing."

We leave it to the reader to judge whether such an action as the foregoing springs from instinct or from intelligence.

Taken in Los Angeles County *Photo by Finley and Bohlman*

MEASURABLY REASSURED

So far we have assumed, rather than stated, that the California Condor is a rare bird, and that an acquaintance with it at first hand is a coveted privilege. It is so rare a bird that it is doubtful if there are in existence one hundred representatives of the species at the present time (Sept., 1921), and it would not be very surprising if there should prove to be not above forty. The center of "abundance" is, as it probably always has been, the southwestern coastal ranges of California. Birds were also, until recently, found in the San Gabriel-San Bernardino ranges and throughout the entire southern system, well down into Lower California. The species doubtless still persists in the San Pedro Martir Mountains of Lower California, but in all probability it has within the past two decades died out of the region intervening between Ventura County or extreme northern Los Angeles County and the Mexican line. Yet California was once a paradise for Vultures; and a fauna which boasted camels and elephants and saber-toothed tigers supported not only Vultures and Condors in profusion, but a super-Condor, one *Teratornis merriami*, which had a stretch of wings of perhaps eighteen feet, and which made our hero look like a bantam. These things we know—and enough more to fill an avian Arabian Nights—from the wonderful Brea beds, or swamp of asphaltic ooze, near Los Angeles.

Taken in Los Angeles County
Photo by Finley and Bohlman
PORTRAIT OF "GENERAL"

Within historic times the California Condor ranged as far as the lower stretches of the Columbia River, and J. K. Townsend, stationed in the Thirties at Fort Vancouver, Washington, saw them there, apparently at different seasons, feasting upon the stranded salmon. Drs. Newberry and Cooper, following in the Fifties, failed to find them anywhere north of the California line, and commented upon their absence. Franklin J. Smith records[1] specimens killed near Eureka, one in the fall of 1889 or 1890, and the other taken 60 miles east of Eureka, in the fall of 1892. Finley records[2] the bird in southern Oregon as late as 1904, on the authority of

[1] Condor, Sept. 1916, p. 205.
[2] Condor, Vol. X., Jan. 1908, p. 10.

Messrs. George and Henry Peck, both of whom he testifies to be reliable ornithologists and well acquainted with the species in southern California. John Fannin, some time curator of the Provincial Museum at Victoria, B. C., claims to have seen two Condors at Burrard Inlet (near Vancouver) in September, 1880, and again two on September 10, 1896, in Alberta between Calgary and the Rocky Mountains.[1] In the latter instance the observer was almost certainly mistaken. He probably saw Golden Eagles, which in the adolescent plumage exhibit a faint patch on the under surface of the wing, and so remind the uninitiated of the well-known diagnostic mark of the Condor. It would be cruel to suggest that the same mistake might have been made at Burrard Inlet, and the occurrence, if true, would be much less remarkable, because the Fraser River in salmon time offers much the same attraction as did the Lower Columbia a century ago.

But whatever the former range of the Condor, and the early records are very meager, it is certain that its present range does not extend north of Monterey. And, while it was probably never anything more than accidental east of the Sierras, its occurrence upon the western slopes of those mountains, even upon the lowest foothills, is now rarely noted. Its present range, as nearly as we can make out, is restricted to portions of nine California counties. Civilization has about done for the Condor, as it has done for the bison, the grizzly, the bighorn and the antelope, or, for that matter, the Indian. But because this process is still going on before our eyes, it becomes pertinent to inquire as to the exact causes of the Condor's decrease. Among these, I would place first and foremost, gunfire. The wanton destruction of these noble birds has gone steadily forward until very recent years. Since our constitutional guarantees have made every

Taken in Los Angeles County *Photo by Finley and Bohlman*

PORTRAIT OF CALIFORNIA CONDOR
NOTE THE REGAL RUFF AT ITS BEST

[1] The Auk, Vol. XIV., Jan. 1897, p. 89.

man a potential killer, an agent of destruction with an ever increasing range of power, the thoughtless and the weak-minded have taken delight in slaughter. And the nobler the victim the louder the guffaw when he fell a crumpled mass of feathers—that was all. A dead Condor could win a moral beggar a momentary applause at the local hardware store; but a Condor wantonly slain was a dead epic, a treasure-laden galleon "*spurlos versenkt*," and an indictment of a civilization false at the core.

Again, the early prospectors found that the great wing-quills of the Condor made convenient receptacles for carrying gold dust. Hundreds fell, no doubt, before this trifling excuse, which has been paraded on every page of history where the Condor is mentioned. Lastly, the exactions of science have added their quota to the mortal agonies of a dying race. I make no comment upon the exceptional privileges granted to some of our leading museums. Such monumental records, conscientiously prepared, are suitable and necessary; but in the Nineties of the last century and in the early years of this, when the word went out that the Condor was "getting scarce," every bird-stuffer and every village junk-pile, dubbed museum, saw to it that it got its share. The oölogists rallied to the fray, and the less scrupulous of their number, not content with one or two specimens, set out to get all they might while the getting was good. The getting, we are told, is no longer good. The race, never prolific, since a pair of birds produce only an egg in a season, is now falling below the breeding level. The social incentive for reproduction is wanting. Hunted creatures do not breed.

But, understand, I blame no one. Blaming never did any good, anyhow. What people do of their own free will gets done, and the rest goes undone. Legal protection? But what is the law except a crystallized expression of public opinion? If its expression happens to synchronize with the workings of the public conscience, well and good. The law becomes a motto. If its promulgation anticipates by too much the advancement of the public conscience, the law is ignored, evaded, or openly flouted. Or, again, if the statutory expression lags behind the public mind, the enactment is futile: it simply reiterates the commonplace. Law, then, is not a remedy, but a record of progress. And progress has to come from the inside. But whether we blame or withhold our blame, the Condor is the loser. Perhaps it was all impossible. Civilization will eventually abolish carrion—that goes without saying—and the Condor, if he stayed, would have had to draw his belt tighter and tighter. You see the end. Perhaps these very unconscious forces of destruction, blind, selfish, irresponsible, were ordained in mercy.

In the last place we note that there is a widespread opinion that the disappearance of the Condor was occasioned by the use of poison. The

Taken in Los Angeles County *Photo by W. L. Finley and H. T. Bohlman*

MATERNAL ANXIETY

THIS IS THE MOTHER OF "GENERAL," THE FAMOUS CAPTIVE IN THE NEW YORK ZOOLOGICAL PARK

cattle-men, frenzied by the depredations of the coyotes, poisoned their beef carcasses. The coyotes ate and were killed. Ergo, the Vultures, who feasted with them, must have perished by scores. It sounds very plausible, but I am not persuaded. Evidence is lacking to show that the Vultures did die of poison. The question should have been very easy to determine. Vultures lingered about their fallen prey and gorged to repletion. If they fell, they must have fallen in their tracks, or at least in the open. But there is no record of such destruction. There are two other alternatives. A Condor's stomach can stand a great deal of abuse. Ptomaines, for example, have no terrors for it. Again, a bird has unusual facilities, up to a certain point, for "unswallowing" food which disagrees with it. In such fashion I think our friend has succeeded in escaping the wholesale punishment so generously meted out to it—on paper. Perhaps I am wrong, but here at least is something to think about.

1735

Of course, there is more to be said about the Condor. We have discoursed, instead, perhaps to our undoing, of law and scenery and aëronautics. But the Condor deserves a volume to himself. He should have a biographer duly appointed by the State and given full jurisdiction over Condor territory. It would be a social service well worth the effort if some painstaking and devoted admirer of this noble bird would spend six years in an exhaustive study of the Condor afield. Only so shall we ever have an adequate account of one of Nature's most impressive, aye, majestic children. And such a study will have to be undertaken, if at all, within the decade.

No. 340

Turkey Vulture

A. O. U. No. 325. **Cathartes aura septentrionalis** Wied.

Synonym.—Turkey Buzzard.

Description.—*Adult:* Head and neck all around naked, livid crimson; above lustrous black with purple and violet reflections, varied by grayish brown edgings of feathers; plumage changing below to more uniform sooty brown, lustrous only on breast; wing-quills and rectrices light dusky below, with whitish shafts; primaries deeply emarginate, the tips considerably separated in flight, very flexible; iris brownish gray; bill dull white; cere bright red. *Young:* Similar, but dusky on head and neck, with downy grayish brown feathers; bill blackish. *Nestlings:* Covered with heavy white down, but head naked,—light bluish black. Length 685.8-812.8 (27.00-32.00); extent about six feet; wing 558.8 (22.00); tail 292.1 (11.50); bill including cere 55.9 (2.20); tarsus 65 (2.56).

Recognition Marks.—Eagle size or less; naked red head; black plumage nearly uniform; soaring flight.

Nesting.— *Nest:* In hollow trees, stumps or fallen logs, or in crannies of cliffs; unlined. *Eggs:* 2; elliptical-ovate, dull white, greenish or buffy white, spotted and blotched irregularly with rich dark brown. Av. size 71.1 x 49.5 (2.80 x 1.95). *Season:* April to May; one brood.

Range of *Cathartes aura.*—North and South America from southern Canadian Provinces south to Patagonia and the Falkland Islands.

Range of *C. a. septentrionalis.*—North America from the southern portions of the western Canadian Provinces, southwestern Ontario, southern New York, and New Jersey, south to northern Mexico and southern Lower California, wintering easterly in all except the northern portion of its range, but in the West retiring as far as Nebraska and California.

Distribution in California.—Resident south of the Tehachipe and casually north (or perhaps winter visitors) to Vaca Valley, Solano County (Grinnell). Elsewhere found commonly in spring, summer, and fall throughout the State, save in Boreal zone. Most abundant in warmer sections, and breeding almost exclusively in Upper Sonoran zone.

Authorities.—Gambel (*Cathartes aura*), Proc. Acad. Nat. Sci. Phila., iii., 1846, p. 44 (Calif.); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 37 (San Joaquin Valley).

The Turkey Vulture

Taken in Kern County

Photo by the Author

THE BUZZARDRY

A WONDERFUL CARPET OF BLUE FLOWERS LEADS UP TO THIS APARTMENT HOUSE FOR VULTURES

IN THE FOG-BELT, the Vulture's day may not begin before eight or nine o'clock in the morning, but once a-wing our sable hero enters upon a quest the most active and tireless, the most patient, and the most often unrewarded, of any which mortals know. Eternal hunger is a-wing, and when the Buzzard sweeps low to bend upon you an inquiring eye, you shudder. The passing shape casts a shadow as of death, and it is really the grave which appraises you in that deferential, hopeful gaze. But do not be dismayed! It is a gentle ghoul. He has not in himself the power of death for so much as a toad; and as for death's debris, why should not our thrifty mother feed her other children at our expense, if we are careless enough to get left around?

It is as an aviator rather than as a sexton, however, that one should think of the Turkey Vulture. His performances in the air are such as to awaken unqualified enthusiasm; and it is interesting to note in this connection that *Cathartes aura*, the species, is the oldest living performer among that highly specialized group of stars, the *Cathartidæ*. While he did not actually invent the heavier-than-air machine—gracious, no!—the Turkey Vulture was calmly practicing the aviator's art at least half a million years before the Wright Brothers waxed ambitious. No wonder, then, that he is such an adept, or that his more adaptable type of "machine" has witnessed the downfall of half a dozen earlier models,—*Catharista shastensis* Miller, *Gymnogyps amplus*, and the rest. No more interesting chapter, by the way, has ever been written in avian paleontology than that brought to light by Professor Loye Holmes Miller, of Los Angeles. This gifted investigator finds that at least eight species of Vultures have at one time or another inhabited California, and that *Cathartes aura* was contemporaneous with the oldest of them. Our sable

Taken near Santa Barbara *Photo by the Author*

WAITING FOR THE CORONER

friend dined on Mylodon cutlets *à la française*, or sat enviously by while *Teratornis merriami*, the giant Condor of old, helped himself to the choicest portions of a foundered mammoth.

Be that as it may, the crowning touch of a summer day, A. D. 1918—28—38, is afforded by the sight of a small company of Turkey Vultures lazily drifting across the middle distance, soaring, shifting, wheeling, weaving endless circles, in restful monotony of midsummer content. Lost in admiration and in envy of their powers, we may well forget that these gifted aviators are repulsive in presence or abject in demeanor. As a decorative feature in the landscape, the Vulture possesses an irreplaceable value. And if you add to this the wonder of wings, the mystery or the incomprehensible adroitness of gliding flight, you have just grounds for respect.

As a problem in aerodynamics, "the way of an Eagle (Vulture) in the air" is little nearer solution today than it was in Agur's time. All we can do is to record the appearances. If caught upon the ground, the Vulture pitches forward, gives an awkward flap or two to clear his footing, rises sharply, almost immediately catching the air in his ample wings, and begins to sail. Henceforth, with motionless pinions he tilts and

turns and sweeps about in stately curves, or glides swiftly off at will in any direction. How *does* he do it! It is easy to see how a bird, moving with the wind and falling sharply, may wheel and breast the wind more sharply still, using his acquired momentum to gain a greater height than the one originally occupied. In this the momentum is like the pull of the string which enables the kite to shoot rapidly upward through the air. But what shall we say of a bird which, without momentum, but still on motionless wing, rises steadily against the wind? Not only rises, but makes rapid progress forward, as well, in a direction contrary to the wind. Ascending air-currents, the engineers say; but it seems to me that they are only masking their ignorance or begging the question. Ascending air currents are undoubtedly an important modifying factor operative near inequalities of the land's surface; but it yet remains to be proved that the mere radiation of heat from the earth's surface is sufficient to sustain a weight aloft. It will not do so on a perfectly calm day, however intense the radiative action. I stubbornly believe, therefore, that the configuration of a bird's wing is such that it is enabled to play gravity as if it were a kite string, and to resolve the thrust of the wind into its two elements of drift and lift, neutralizing the one and utilizing the other to any re-

Taken near Santa Barbara *Photo by the Author*

AN ANCIENT MODEL

quired degree.[1] Anyhow a Vulture's wing is a "plane" of a very special kind. The bird can travel on the wind in *any* direction, *whatever* the state of the atmosphere. If this be due to "convection" make the most of it.

The American Vulture is not a high-flyer, like those of the Orient. He does not lose himself in the empyrean, after the approved fashion of *Gyps fulvus*, or *Neophron percnopterus*, or even of our own Condor. Nevertheless, it is evident that our Buzzard places chief dependence upon

Taken in San Luis Obispo County AT THE MOUTH OF A NESTING CAVE *Photo by the Author*

his marvelous eyesight. No visible corruption, be it ever so humble, escapes his notice. But as to the bird's ability to discover *hidden* treasure, a marked difference of opinion exists. Some authorities have stoutly denied that the Vulture depends at all upon its sense of smell, and cite instances of reeking carrion lightly covered with earth which provoked no attention from the Buzzards. A possible reason for this alleged inability to locate offal by scent alone is brought forward by Coues: "Certain it is that independent of the passing contents of the alimentary canal, permanent fœtid odors exhale from the bones and muscles; and

[1]Recent theory and *practice* have abundantly confirmed the author's position, which he has consistently maintained for thirty years.

the same stench is entangled in the web of the feathers. It is retained for a long while even after the bird is killed and stuffed. So strong is it that one author, an excellent naturalist, too, fancied it must be rather unpleasant to the birds themselves." Since the birds, therefore, reek with filth, they are not in a position to exercise discrimination with reference to external scents.

Taken near Santa Barbara *Photo by the Author*

SOMETHING DOING

TURKEY VULTURES ARE NOT OFTEN FOUND IN SUCH LARGE COMPANIES

On the other hand, Dr. Joseph Grinnell cites repeated instances[1] in which Turkey Vultures, apparently guided by the sense of smell, have found concealed bait intended for mammals. Of his work in the lower valley of the Colorado Dr. Grinnell says:[2] "We were continually bothered in our mammal trapping by these birds. Wherever meat bait was used and the steel traps left out during the day unsprung, no matter how far back under thick bushes these were placed, and so concealing the setting from view, the turkey buzzards were almost certain to get caught. Fully two dozen were thus captured, and, being seldom severely injured, were usually released." The question is, therefore, still open to debate.

Turkey Vultures are indefatigable gleaners and scavengers, and as

[1] "An Account of the Birds and Mammals of the San Jacinto Area of Southern California," by J. Grinnell and H. S. Swarth, U. of C. Pub. in Zool. Vol. 10, No. 10, pp. 234, 235.

[2] "An Account of the Mammals and Birds of the Lower Colorado Valley," by Joseph Grinnell, U. of C. Pub. in Zool., Vol. 12, No. 4, p. 123 (1914).

Taken in Riverside County BUZZARDS' ROOST *Photo by the Author*

such are more in evidence in California than all other Raptors combined. The carcass of a large animal, a horse or a cow, will attract a score or more of these gruesome banqueters. The early comers stuff themselves to repletion, and then stand about upon the ground or roost in neighboring trees until nature has completed her task, and appetite returns. At such feasts the Ravens and Eagles get first helpings; Condors, if any, come in next; so that "Buzzards," perforce, get only the leavings. It does not seem true, as has sometimes been asserted, that the birds really prefer decayed flesh. It is rather a matter of necessity for them, inasmuch as they are unable, except in rare instances, to rend a carcass sufficiently before an advanced stage of decomposition has set in.

The cattle ranges are not, as we should have expected, especially favored by these birds. The widespread practice of stockmen of poisoning carcasses for coyotes probably accounts for this fact. The Vulture is not in any particular danger of his life from poison, but an overdose of strychnine will cost him his dinner; and what's the use of eating, if it won't stay down? The Vulture has not, therefore, sunk to the moral level achieved by Nero and his courtiers, for these infra-beasts at their orgies are said to have relieved themselves again and again through the aid of emetics, and so gorged and swilled until drunkenness overcame them quite. On the other hand, Buzzards are very abundant in Mendocino and Humboldt counties, the hog-raising belt, and one may well believe it is because hogs are not poisoned.

The struggle for existence, sharpened in this case by the increase of sanitary science, has made the apprehension of food increasingly

difficult for the Buzzard. Nothing is too humble for his notice, a dead frog, a snake, or a gopher. Indeed, the buzzards are under an increasing debt of obligation to the automobilists, who leave now and then a cat or squirrel in their scented wake. Buzzards resort also to the seashore, and share with the scavenger gulls the charity of a scornful ocean. Storm-beaten ducks and spent tom-cods find thus an inglorious sepulture.

A CATHARTINE DANDY
YOUNG VULTURES ARE REALLY VERY HANDSOME CREATURES

It is needless to add that in the gleaning of offal the Turkey Buzzards perform an invaluable service to humanity. The charge that they have been themselves active in the spread of disease, such, for instance, as hog cholera, does not seem to be sustained; and there is every reason why the birds should enjoy the fullest immunity.

No. 341

American Merganser

A. O. U. No. 129. **Mergus merganser americanus** Cassin.

Synonyms.—GOOSANDER. SHELDRAKE. SAW-BILL. FISH DUCK.

Description.—*Adult male:* Head and upper neck greenish black, the hind-neck loosely crested; upper back, inner scapulars, and a prominent short bar formed by exposed bases of greater coverts, black; the primaries and their coverts dusky; lower back and tail ashy gray; neck all around, outer scapulars, most of the wing-coverts, speculum, and entire underparts white, the latter delicately tinged with pale salmon (this generally fading to creamy white in skins); tertiaries white, bordered narrowly with black; flanks wavy-barred, ashy gray and white. Bill and feet vermilion, the former black on ridge, with black hooked nail; iris carmine. *Adult female and immature:* More conspicuously crested on hind-neck and nape; the head and upper neck dark cinnamon-brown, white on chin and sides of throat; above ashy blue-gray, with white speculum and black of wings much as in male; underparts white, shaded on sides with

color of back, and faintly tinged with salmon. Bill red with dusky ridge; feet chrome-yellow or orange, with dusky webs; eyes yellow. Length: 635-685.8 (25.00-27.00); wing 273.1 (10.75); tail 108 (4.25); bill 54.6 (2.15); bill from nostril 38.1 (1.50); tarsus 48.3 (1.90). Female averaging three or four inches shorter and proportioned accordingly.

Recognition Marks.—Mallard to Brant size; long, narrow bill with prominent serrations on side; underparts white or pale salmon-tinted; *no* rusty or ochraceous on breast; nostril just within basal *half* of bill. Lovers of swift waters; river divers.

Nesting.— *Nest:* Occasionally on the ground, near stream; more commonly in hole of tree or stub; lined with moss, grasses, and feathers. *Eggs:* 6 to 16; dull creamy white or pale grayish yellow. Av. size 67.3 x 45.7 (2.65 x 1.80). *Season:* c. May 1st; one brood.

Range of *Mergus merganser.*—Holarctic, i. e., the northern portion of Northern Hemisphere, south in winter to the Mediterranean, Burma, Japan, and northern Mexico.

Range of *M. m. americanus.*—Breeds from Alaska, the Great Slave Lake region, southern Ungava, and Newfoundland south to the northern tier of states, and in the mountains to California, New Mexico and (formerly at least) Pennsylvania. Winters from the Aleutians, British Columbia, Colorado, and southern Ontario, south to the Gulf States, northern Mexico, and Lower California.

Distribution in California.—Fairly common winter resident on open streams, both interiorly and coastwise. Less common on salt water than *M. serrator.* Breeds sparingly near lakes and streams in the Sierra Nevada, at least as far south as Tulare County, and in the Humboldt Bay region.

Authorities.—Cooper (*Mergus americanus*), Proc. Calif. Acad. Sci., vol. iv., 1870, p. 70; *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 26, 1906, p. 19 (distr. and migr.)—*which also consult for all remaining members of this group; Law*, Condor, vol. xiv., 1912, p. 41 (brood of young described; Lake Tahoe); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 22 (occurrence in s. Calif.); *Grinnell, Bryant, and Storer*, Game Birds Calif., 1918, p. 79 (desc., habits, occurrence, etc.)—*which also consult for all Ducks and Geese.*

THE FIRST glimpse of this splendid bird ever vouchsafed the writer was upon the rock-bound shore of that emerald gem of mountain lakes, Chelan. The bird had been surprised at the water's edge, and winged as he attempted to rise. With instant decision he took to the water and dived sharply. When some twenty feet deep, he turned and paralleled the shore, intending to make a landing at some distance and secrete himself among the rocks. It was a rare sight from my vantage point, some forty feet above, to watch the duck cleaving the water with strong concerted strokes of his vermilion feet. In that limpid water the resplendent black of his head and the salmon-tinted sides shone almost as if there was nothing between us. I am almost sorry to add that his ruse was not successful, and that his skin now rests in an eastern museum.

Not only are these Mergansers expert divers, but the sharp "teeth," inclining backward as they do, are calculated to hold the most slippery prey. Fish caught in fair pursuit form the bulk of their food, but frogs, water-insects, crayfish, and other crustaceans vary the monotony. Since

the taking of such prey depends primarily upon unimpeded eyesight, it goes without saying that these birds prefer clear waters and free course. Although they visit in winter the ocean and its estuaries, as well as the larger bodies of water in the central valley of California, the breeding range of the American Merganser includes only the crystal clear waters of the high Sierras and a few of the northwestern rivers. It is to be feared that when the Fish-duck encounters a lusty school of herring or a company of young salmon he does not agree that "enough is as good as a feast." An Arctic authority, Hearne, states that it devours fish in such great quantities as to be frequently obliged to disgorge several before it can rise from the water. It is noteworthy in this connection that the skin of the throat is unusually elastic, so that the bird can accommodate a large catch. Mr. Bowles once shot a female which had a suspiciously swollen throat. A post mortem disclosed a seven-inch trout, whose head was digesting comfortably, but whose tail had not yet found entrance into the bird's stomach. After an especially satisfying meal the bird is likely to clamber ashore in some secluded spot and indulge in a digestive nap. On such an occasion I once got near enough to sprinkle salt on the gluttonous creature's tail, but a grating pebble gave the plot away before I got my hands upon her.

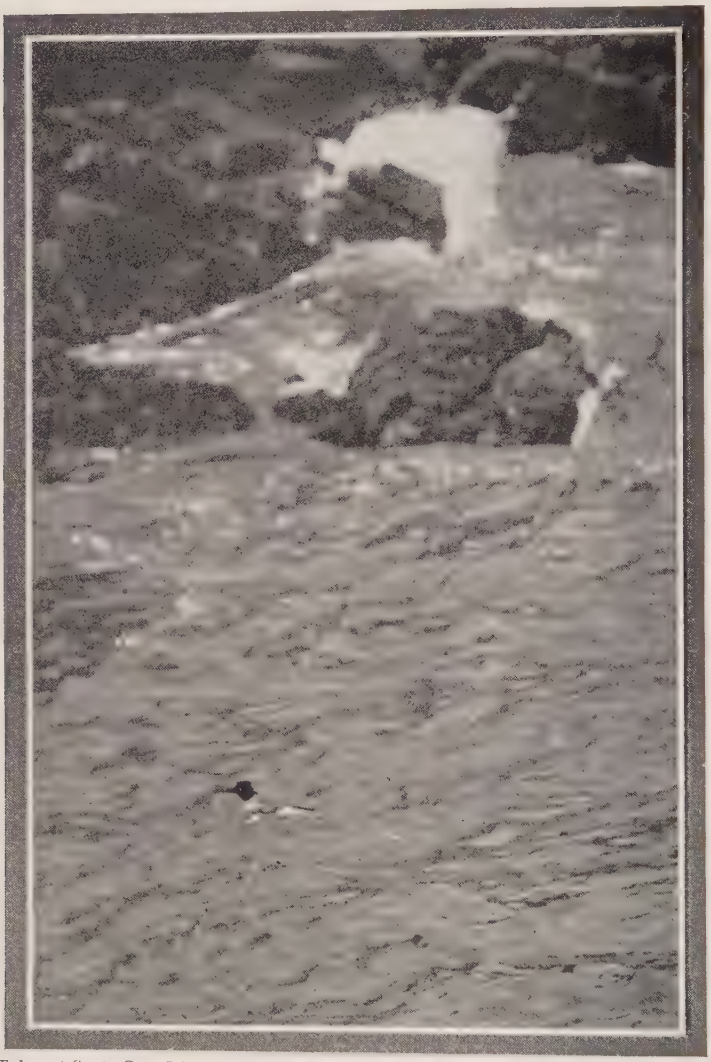
Like the Golden-eye and certain other ducks, this Shelldrake usually occupies a hollow tree or stub for a nesting site. Now and then a crevice in the face of a cliff does duty, and old nests of hawk or crow have been pressed into service. Moderate elevations are favored, but Mr. Bowles once found a nest in a decayed fir stub at a height of over a hundred feet. The cavity, wherever found, is warmly lined with weeds, grasses, and rootlets, and plentifully supplied with down from the bird's breast. The eggs are of a clear creamy, or dull buffy tint, and have that "hard-oil" finish characteristic of so many ducks' eggs, and they are further polished by four weeks of incubation. The young, when hatched, require to be transported to the water in the maternal beak—a rather trying ordeal, we must presume, in the case of that tenth-story tenant of the fir stub.

The American Merganser is rare enough as a breeding bird of California, so that we welcome the clear account furnished by Mr. Eugene Law:[1]

"One of the prettiest sights of my experience came very unexpectedly while I was standing on a board walk in front of a little cabin at the edge of Lake Tahoe about 5 p. m. on June 24, 1911. This was in a little cove occupied by fishermen at the source of the Truckee River between Tahoe Tavern and Tahoe City. At this particular spot the walk stood out over the water and on either side the willow marsh extended out to a like distance.

[1] Condor, Vol. XIV., Jan. 1912, pp. 41 and 42.

"Suddenly we heard a hoarse masculine 'quack' almost under our feet and a beautiful adult American Merganser, with glossy auburn head and crest, glided out, followed by eighteen or twenty babies not over a week old. The water was as smooth as glass, and this pretty procession paid no attention to us as it passed the length of the short walk within five feet of where we stood. The little ones kept close in the wake of the mother, moving quickly here and there, never quiet a minute, and changing positions so rapidly that it was impossible to accurately count them. The mother's commanding 'quack' seemed to keep the little ones in perfect obedience and they behaved like a company of little soldiers. They were a pretty golden brown, each with a conspicuous white spot on each wing. Evidently they were after their supper and all working hard. They passed quickly on, then tacked back a little further out, then gradually worked across the cove and into the willows a few hundred yards along the shore.



Taken at Santa Cruz Island *Photo by the Author*

RED-BREASTED MERGANSER, MALE, IN SURF

"Several times the mother raised almost out of the water and dashed

quickly along for fifty feet or so, every chick rising and skipping after her, flapping its little wings and paddling the surface of the water with its little feet. After three of these spurts the youngsters seemed to tire, and one climbed on its mother's back; and soon several had done so, and rode securely there as long as they were in sight. Fortunately we had a good pair of Zeiss glasses and were able to watch every movement until they disappeared into the willows."

No. 342

Red-breasted Merganser

A. O. U. No. 130. **Mergus serrator** Linnæus.

Synonyms.—Red-breasted Sheldrake. Shelldrake. Saw-bill.

Description.—*Adult male:* Head all around black, with a greenish gloss on sides above; a loose crest from crown to nape; middle of neck all around white; lower neck all around (narrowly and impurely behind) and fore-breast, cinnamon-rufous streaked with black; sides of breast, upper back, and inner scapulars black; a tuft of enlarged feathers on sides of breast before wing, each feather white, bordered completely with black; wing-coverts, outer scapulars, speculum, and inner secondaries white, the last black-edged; two narrow transverse black bars formed by exposed bases of greater coverts and secondaries; primary-coverts, outer secondaries, and primaries blackish; sides and around on rump heavily wavy-barred, black and white; lower back and tail ashy gray, more or less speckled or wavy-barred on tips with black and whitish; lower breast, belly, and crissum white, usually tinged with pale salmon or cream-color. Bill narrower than in preceding species; bill and feet bright red, the former with dusky ridge; eyes carmine. *Adult female and immature:* Similar to those of preceding species, but head duller, grayish chestnut; white of wing without black bars; position of nostrils distinctive. Bill and feet duller-colored. Length 508-635 (20.00-25.00); wing 243.8 (9.60); tail 82.6 (3.25); bill 55.9 (2.20); bill from nostril 44.5 (1.75); tarsus 44.5 (1.75). Female somewhat smaller.

Recognition Marks.—Mallard size; narrow serrated bill; head loosely crested; reddish of breast and sides wavy-barred black and white, specifically distinctive for male. Females of this species cannot be told out of hand from those of *M. m. americanus*. In hand the nostril within basal third of bill (as distinguished from nostril just within basal half for *M. m. americanus*) is diagnostic. River divers.

Nesting.—*Nest:* On the ground under logs, brush, rocks, and the like, near water; lined with leaves, moss, and feathers. *Eggs:* 6 to 12; olive-buff to deep olive-buff. Av. size 65 x 44.7 (2.56 x 1.76). *Season:* April 20–May 10; one brood.

General Range.—Northern portion of Northern Hemisphere, breeding northerly; south in winter to the Mediterranean, India (rarely), China, Japan, and the southern United States. In America breeds from the Arctic Coast south to the northern tier of states and winters in open water south to Lower California, Louisiana, and Florida; casually to Cuba and Hawaii.

Distribution in California.—Common winter resident along the entire seacoast and among the islands; usually found just off shore or in brackish ponds and estuaries. Occurs also irregularly upon larger bodies of fresh water (Salton Sea, Apr. 27, 1917).

Authorities.—**Newberry,** Rep. Pac. R. R. Surv., vol. vi., 1857, p. 104 (San Francisco); *Nelson,* Rep. Nat. Hist. Coll. Alaska, 1887, p. 66 (desc. nest, eggs, habits, etc.); *C. W. Townsend,* Auk, vol. xxviii., 1911, p. 341 (courtship, etc.; New England).

SWIMMING is the way of nature and flying a slowly acquired art for the Shelldrakes. The adults, indeed, are capable of rising quickly and flying with great rapidity at a considerable height, but oftener they patter over the surface of the water to get a running start, and then with outstretched neck and supple wing skim along close to the water, as though loth to leave its friendly shelter. Many a time have I seen them in the swiftest part of some rushing stream, repeatedly breasting the current with tireless energy for the sake of being swept along some favorite riffle under water, adding thus the momentum of the stream to their own power of locomotion in enabling them to seize quickly unsuspecting trout.

The young birds swim from the shell, but are nearly full grown before they can fly. A troop of half-grown young under the care of the mother bird affords an interesting study, and not infrequently provokes some novice to make the exertion of his life at the oars. At this time there is scarcely more than a trace of muscular tissue on the breast of the youngsters, but the swimming gear, the legs and hinder portions, is fully developed, so that in motion the birds look curiously like long-necked water-bottles. If pursued in a boat the brood keeps well together, each bird leaning forward, almost standing on the water, and keeping up a motion like a tiny stern-wheeler, the whole flock leaving a wake behind them not unlike that of a small steamer. The anxious mother directs the flight, now dropping into the water to urge the chicks to greater exertions, now flying back to distract the attention of the pursuers, or to develop some ruse to cover the escape. Once when a party of us were pursuing a brood in this manner along the rocky shore of Lake Chelan, the mother bird hit upon a very clever scheme. When the flock was becoming winded and we would head in toward them, she would fly between us and the shore, pretending to lead the flock back down the lake. At first we bit eagerly, and pressed in between her and the flock, intent on cutting off the retreat, only to find upon looking about that the cunning mother had made a wide circuit around us and was urging her brood up the lake again at a headlong speed. Finally, when thoroughly tired out, after a three mile chase, the ducklings took to shore and hid successfully in the loose rubble of the beach without the aid of a scrap of vegetation, and near

water so clear that a movement could have been detected at a depth of a hundred and fifty feet.

The nest of the Red-breasted Merganser has never been reported from California. Conditions are, however, so favorable in the northwestern humid belt that we shall not regard this as a closed case. Eggs, if found, would be laid in scantily constructed nests under driftwood, logs or rocks, and always near water. The male deserts his mate as soon as the eggs are laid, and lives a life of lonely and selfish, albeit adventurous, ease. In winter the birds are found upon salt water in considerable numbers; and from the fact that flocks of six or eight are about the average, we judge that family groups remain clustered about their mother until early spring.

No. 343

Hooded Merganser

A. O. U. No. 131. **Lophodytes cucullatus** (Linnæus).

Description.—*Adult male:* Head with a large compressed semi-circular crest; sides of crest white in large sector, or open-fan-shaped patch; the edge black in a sharply defined border; fore-crown deep brown; remainder of head and neck all around, upperparts, and two transverse crescentic bars on each side invading white of breast, deep brownish black (coal black on lower scapulars); lesser and middle wing-coverts ashy gray; speculum and tips of greater coverts white; two small transverse black bars formed by exposed bases of greater coverts and of secondaries; inner secondaries and tertials white, heavily bordered with black; sides pale to rich cinnamon-rufous, wavy-barred with dusky. Bill comparatively short, narrow, black; nostril barely within basal third (measured from anterior margin of loral feathering); feet light brown; eyes yellow. *Adult female:* Head, neck, fore-breast, sides of breast and sides dull grayish brown; the crest much thinner than in male, entirely cinnamon-brown; upperparts deep brown, blackening on lower scapulars; wings the same with traces of white on edges of speculum; lower breast and belly white, shaded with brownish on crissum. Bill dusky, orange at base and on lower mandible. *Immature:* Similar to adult female, but crest undeveloped. Length 431.8-482.6 (17.00-19.00); av. of five males: wing 193.8 (7.63); tail 91.4 (3.60); bill 39.6 (1.56); tarsus 32.5 (1.28). Females average somewhat smaller.

Recognition Marks.—Larger than a Teal; very conspicuously round-crested. The male even at a superficial glance could be confused only with a Bufflehead (*Charitonetta albeola*). It differs from it in that the white of crest does not come to the edge; and, of course, in its entirely different bill. On more quiet waters,—ponds and sluggish streams.

Nesting.—*Nest:* In a hole of tree or stump, usually near water, lined with grasses, etc., and feathers. *Eggs:* 10 to 12, sometimes more; pale buffy white or ivory yellow. Av. size 53.3 x 44.5 (2.10 x 1.75). *Season:* c. May 1st; one brood.

The Hooded Merganser

General Range.—Temperate North America. Breeds from central British Columbia, Great Slave Lake, central Keewatin, and Newfoundland, south to southern Oregon, northern New Mexico, Louisiana, and Florida; winters from southern British Columbia, Utah, Colorado, Nebraska, Ohio, and Massachusetts, south to the Gulf States, Cuba, Mexico, and Lower California; casual in Alaska, Greenland, and the British Isles.

Occurrence in California.—Rather rare spring and fall migrant and winter resident. Found in coastal marshes and upon sluggish interior streams or reservoirs.

Authorities.—Newberry (*Mergus cucullatus*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 104 (San Francisco); *Evermann*, Auk, vol. iii., 1886, p. 89 (Ventura Co.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 22 (status in s. Calif.).

THE HOODED MERGANSER is so rare a visitor within our borders that it is always considered worth while to report its special occurrence. Unlike the two larger species, it does not frequent swift streams nor limit its attention to emerald waters. A sluggish lagoon or a quiet pond suits it better. The color of the water doesn't matter, either, so long as there is an abundance of water-insects, small fish, or tadpoles.

The beauty of this bird ought to exempt it from persecution. Its flesh is unfit for the table, and its numbers do not justify systematic pursuit. Nevertheless, it has wings, and its swift eccentric flight, resembling that of a Green-winged Teal, Bowles says, provokes the skill of every wayside marksman. Naturally timid, it is not suffered to display its beauty, and incessant gun-fire has made it exceedingly wild.

The Hooded Merganser has been reported nesting as far south as southern Oregon and its occurrence in our northwestern counties in the breeding season is not improbable. For this reason I quote two paragraphs by Bowles which appeared in "The Birds of Washington":

"During early March the flocks separate into pairs, and late in April all retire to fresh water to breed, the majority going north of the United States, but many remaining to nest along the northern border. About the first of May a pair may occasionally be found nesting near any one of the smaller unfrequented lakes of Washington, a natural hollow or large woodpecker hole in a tree near the water being selected for a nesting place. The nest is located at an elevation of from twenty to sometimes sixty feet from the ground, the composition being mainly weeds and grass, with a thick inner lining of feathers. Like the other Mergansers again, the male deserts his mate as soon as the eggs are laid, leaving her to feed herself and attend to the young.

"Almost as soon as the eggs are hatched, the female transports the babies to the water, carrying each one carefully in her bill, as is probably the habit of all tree-nesting ducks. This is the rule, but I have been informed, on what I believe to be good authority, that these birds oc-

casionally nest on the ground, laying their eggs in a hollow in the moss, beneath the low-spreading branches of some fir or cedar."

Since writing the above, Mr. Bowles tells me that he has taken (April 21, 1917) a set of eggs of the Hooded Merganser, n/10, from an *artificial nesting box* nailed up against a tree overlooking a secluded lake near Tacoma. Only the initiated can guess the skill and patience required on the part of the oözetetic *seducteur* in the landing of this difficult prize.

No. 344

Mallard

A. O. U. No. 132. **Anas boschas** Linnæus.

Synonyms.—Gray Mallard. "Wild Duck" (par excellence). Greenhead.

Description.—*Adult male:* Whole head and neck soft, shining, dark green; fore-neck and breast rich dark chestnut, with a purplish tinge, separated from green of neck by narrow white collar not meeting behind; sides of breast, belly, sides and crissum grayish white, finely undulated with dusky; the same continued on back, but largely overlaid or suppressed, except on scapulars, by rich brown of various shades; speculum (terminal portion of secondaries) shining metallic blue or purplish violet, bordered on either side immediately by black and then by white,—the anterior bars furnished by the tips of the greater coverts, the posterior by the tips of the secondaries; rump sooty brown; upper tail-coverts deep black with greenish gloss, the longer central feathers curled upward; under tail-coverts deep purplish black; tail grayish white with dusky speckling and central areas. Bill olive-yellow with black nail; iris hazel; feet orange-red. *Adult female:* Quite different; speculum much as in male, but remaining plumage dusky and ochraceous or brownish buff, the former centrally on feathers, broadly and prevailingly on upperparts, the latter narrowly or obscurely in crescentic, U-shaped, and irregular markings; below brownish buff predominant, brightest on breast, fading on belly; head and neck buff, sharply and finely streaked except on throat and usually chin, where immaculate. *Adult male in summer:* Much like female, but somewhat darker (Sharpe and Dresser). Length 508-635 (20.00-25.00); wing 279.4 (11.00); tail 85.1 (3.35); bill 57.2 (2.25); tarsus 44.5 (1.75). Females average smaller than males.

Recognition Marks.—The standard of measurement for ducks (size of Domestic Duck). Green head of male; metallic blue speculum, bordered by black and white, of both sexes.

Nesting.—*Nest:* On the ground, usually near water, well hidden in weeds or rushes, sometimes under sage-bush, at foot of tree in woods, etc., lined with trash and feathers. *Eggs:* 6 to 12, 14 of record; light greenish gray (yellowish glaucous) or "yellowish drab." Av. size 58.4 x 43.2 (2.30 x 1.70); index 73.9. *Season:* May–June 15; one brood.

The Mallard

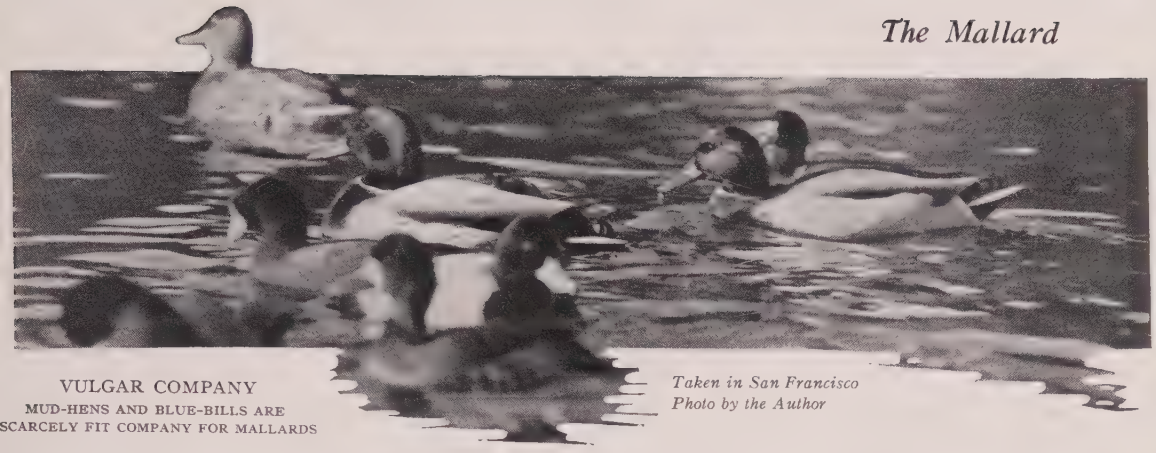
General Range.—Northern Hemisphere, south to Abyssinia, northern India, China, and Japan. In America breeding from the Arctic Coast and Greenland south through the United States, except the southeastern quarter, broadly, to New Mexico and Lower California; wintering south from Alaska and the northern tier of states to the Lesser Antilles and Panama.

Authorities.—Woodhouse, Rep. Sitgreaves Exped. Col. R., 1853, p. 103 (common in Calif.); *H. C. Bryant,* Condor, vol. xvi., 1914, pp. 219, 227, 230 (desc. nest and eggs, etc.); *McAtee,* U. S. Dept. Agric., Bull. no. 720, 1918, p. 2 (food).

THIS, THE CONTEMPORARY ancestor of our domestic duck, enjoys a distribution almost world-wide, and has been from earliest times the best known of swimming birds. Although nowhere in America so abundant as formerly, it is still the standard with which we compare all other species, both in point of excellence and in numbers. Being somewhat less gregarious than the Teals and the Sea-ducks, the Mallards are found in pairs or small parties, wherever a swampy pool or a widening of the brook affords a resting place, and one may easily recognize their fitness for domestication, in the fact that they can content themselves with a little six by eight puddle, when the whole world lies before them.

While on the water the birds spend much time "tipping" for food. Heads under water and tails pointing skyward, they search the bottom for mollusks and crustaceans, or feed upon various kinds of aquatic plants which choke sluggish streams or line the edges of ponds. When hunger is satisfied, they frequently disport themselves upon the water, diving, throwing water over their backs, and splashing about with great ado, much like boys in the old swimming hole. Nights, especially in thickly settled regions, are habitually spent feeding, either by dabbling, or in long forays to stubble-fields, and woods where acorns abound, so that much of the daytime is spent sleeping just on shore, with one leg drawn up and the head tucked comfortably under the wing. Upon being surprised, the ducks rise with a great outcry, in which the female voice is recognized as being a little the louder, and they make off with rapid, strong wing-strokes, which can carry them, it is believed, a hundred miles an hour.

The Mallard is perhaps the wariest, as it is certainly the most adaptable, of all our ducks. These two qualities have enabled the bird to maintain itself after a fashion in the face of persecution the most intense, the most unremitting, and until lately the least restrained of any to which birds have ever been subjected. That this bird has survived at all is a marvel; and that it is ready to become an important economic factor whenever and wherever a reasonable degree of protection shall be extended to it, is a piece of good fortune beyond our deserts.



VULGAR COMPANY
MUD-HENS AND BLUE-BILLS ARE SCARCELY FIT COMPANY FOR MALLARDS

Taken in San Francisco
Photo by the Author

It is difficult to convey to this generation any accurate conception of the former abundance of waterfowl in America. For nearly a century our ancestors in the middle East shot without regard to consequences, nor thought of any necessity for conservation. Professional hunters in the middle South wallowed in gore. They measured their captures by wagonloads, and shipped to the markets by carloads. In certain sections, indeed, tons of ducks were shot annually for their feathers, and no account was taken of their carcasses. That this burden fell heavily

Taken Feb. 2, 1918, near Pennington, Sutter County

Photo by H. C. Bryant
Use by courtesy of the California Fish and Game Commission

THERE ARE A FEW MALLARDS LEFT

Taken in San Francisco HIS HONOR, THE GREENHEAD *Photo by the Author*

upon the Mallard goes without saying. They could not stand up under it forever. A recent example (often quoted) is of a gunner at Big Lake, Arkansas, who sold 8000 Mallards in a single season, that of 1893-94, and it was estimated that 120,000 birds of this species were shipped that winter from that station alone.

But now, thanks to intelligent legislation, the market hunter is a creature of the past. We are learning something of altruistic restraint, and there is hope that some of our noblest species of game birds may recover a semblance of their former numbers. The most encouraging factor in this campaign for rehabilitation is the quick recognition on the part of the birds of the value of protected areas. Any suitable body of water which is *really protected* will teem forthwith with waterfowl. A dozen examples spring to mind: Eastlake and Westlake Parks in Los Angeles, Laguna Blanca at Santa Barbara, Lake Merritt in Oakland; but the supremely instructive example, I believe, occurs in Golden Gate Park, San Francisco. Here, in a favorable setting of Nature, which is, nevertheless, thronged with humans, rests Stow Lake, foremost of a little

chain-of-lakes; and here wild ducks of almost every variety accept man's truce, and show themselves with increasing freedom, up to the very point of accepting food from the hand. Especially the Mallards, elsewhere the wariest of their kind, here find shelter and sustenance; and here, too, wonderful to relate, they are nesting in ever increasing numbers. In the summer of 1916 Messrs. Harrison and Squires[1] made a careful count of the resident (*wild*) Mallards of Golden Gate Park and found 200, old and young. Although this park is thronged daily by thousands, and on Sundays by tens of thousands of people, the business of the birds was conducted with the same adroitness of secrecy which would have been observed in any secluded marsh of the interior; and that business thrived solely because of the freedom from interference which was guaranteed them by vigilant officials, and by the very self-neutralizing numbers of the public.

The mating of the Mallards is a rather serious affair, inasmuch as a bird once widowed remains unmated throughout the ensuing season. And since mates are selected in January, or early

Photo by F. H. Holmes

THE LIMIT
"MALLARD SLOUGH, 1900"

[1] See Condor, Vol. XIX., Mar. 1917, p. 59.

February, the folly of "spring shooting" is self-evident. The courtship, however, is mild-mannered enough, at least according to Dr. C. W. Townsend's able account:[1] "When the Mallard drake courts, he swims restlessly about following or sidling up to a duck. She may lead him quite a chase before she vouchsafes to acknowledge his presence, although he is continually bowing to her, bobbing his head up and down in nervous jerks so that the yellow bill dips into the water for a quarter of its length and comes up dripping. He also rears himself up in the water and from time to time displays his breast. She occasionally turns her head to one side and carelessly dabbles her bill in the water, but sooner or later, if all goes well, she begins to bow also, less vigorously at first—not touching the water at all—and to the empty space in front of her. Suddenly she turns and the pair bow to each other in the same energetic nervous jerks; and, unless a rival appears to spoil the situation, the drake has won his suit."

Taken in San Bernardino County *Photo by Wright M. Pierce*

FEMALE MALLARD ON NEST

In nesting the female Mallard can accommodate herself to a great diversity of situations. Normally a careless accumulation of grasses and reed-stalks in the drier portion of a swamp will suffice. If, however, the

[1]Auk, Vol. XXXIII., Jan. 1916, p. 13.

shores of the chosen lake or pond do not offer a grassy or reedy shelter, the bird will make her nest at the base of a clump of bushes or of a tree. In the more arid sections ducks will nest under sage or other bushes a half mile from water. Examples also are on record where the Mallard occupied a more elevated situation: an accumulation of moss in the crotch of a tree, or perhaps an old crow's nest. Upon discovery the bird will flounder off her eggs, and straightway falls into a pretended swoon or drags her wounded (?) body painfully about—always just out of reach—and then, when the victim has been led far enough astray, rises and flies, quacking loudly.

The male Mallard is probably more loyal than most ducks. There is really no use in his hanging around after the eggs are laid, and his conspicuous beauty might be a detriment, anyhow, in the guardianship of the family secret. For these and other reasons he is usually conspicuous only by his absence. But when real need arises, as when the young are being assailed by unexpected danger, the gallant drake not infrequently shows up, and adds his quackings and splashings to those of his wife, ably seconding frantic efforts to distract attention. He does, in other words, all that could be asked of him. But as for particular ministrations—why, of course, "Mother knows best."

There does not exist in nature a more engaging sight than that of a mother duck tending and piloting her brood. It does not make much difference as to the species. Baby ducklings are irresistibly cunning, every one of them. They sit the water like corks, or race after their mothers like toy steamboats, or stick their fluffy little heads under water in an obedient effort to do as mother does. The mother herself is the soul of anxiety. And who wouldn't be worried with a dozen babies at once, be they never so good! Minks think them cunning, too, and coyotes, and water-snakes; and whoever saw a farmer boy who would not dash into a pond pell mell at sight of ducklings? All heedless the capture, but never a true-hearted lad who did not repent and let the peeping captives go.

No. 345

Black Duck

A. O. U. No. 133. **Anas rubripes** Brewster.

Synonym.—Black Mallard.

Description.—*Adults* (sexes alike): Top of head, broadly, and upperparts dusky brown or sooty brown, varied by pale rusty brown edgings of feathers; remainder of head and neck and hind-neck brownish ochraceous streaked with dusky, save that chin and throat often immaculate; speculum metallic blue or violet bordered by black,

but without white; axillars and lining of wings white; underparts like back but lighter. Bill yellowish green; irides brown; feet and legs orange-red, the webs darker. Length about 558.8 (22.00); wing 271.8 (10.70); tail 104.4 (4.11); culmen 53.6 (2.11); bill from nostril 41.2 (1.62); tarsus 43.9 (1.73). Females average smaller.

Recognition Marks.—Size of Mallard or a little smaller. Like female Mallard, but much darker, sooty brown or blackish to appearance; no white bars on wing.

Nesting.—Does not breed in California. *Nest:* On the ground among reeds or in grass near water, rather carelessly constructed of rushes or dried grass, and lined with feathers and down; occasionally placed in trees. *Eggs:* 6 to 12; elliptical or short elliptical ovate; white or pale creamy white. Av. size 60 x 43 (2.36 x 1.69). *Season:* May–June; one brood.

General Range.—"Eastern North America. Breeds from central Keewatin and northern Ungava south to northern Wisconsin, northern Indiana and southern Maryland; winters from Nova Scotia south to southern Louisiana and Colorado; west in migration to Nebraska and central Kansas" (A. O. U. Check-List, 3rd Ed.). Accidental in California and Jamaica.

Occurrence in California.—Accidental, one record; adult female taken at Willows, Glenn County, Feb. 1, 1911.

Authority.—Grinnell, Condor, vol. xiii., 1911, p. 138.

DUCKS ARE highly sociable mortals; hence, it not infrequently befalls that some gay roysterer turns up in the wrong crowd. A Black Duck was shot at Willows, in Glenn County, Feb. 1st, 1911, and its skin now reposes among the immortal dead at the Museum of Vertebrate Zoology. The species does not normally occur west of the Great Plains, and it is difficult to conceive how this particular example could ever have fallen in with a company of migrants bound for the Golden State.

No. 346

Gadwall

A. O. U. No. 135. **Chaulelasmus streperus** (Linnæus).

Synonym.—Gray Duck.

Description.—*Adult male:* Head and upper neck buffy, spotted or streaked with dusky; top of head darker brownish; breast and lower neck all around dusky and white, each feather with five to eight concentric half-rings of alternating colors, presenting a handsomely scaled appearance; sides, back and scapulars similarly varied with dusky and white, buffy, or ochraceous-white, in semi-concentric, zigzag, or fine, wavy lines; the posterior inner scapulars, not thus marked, dull cinnamon-brown, darker centrally and edged with lighter, lanceolate; lower back dusky, becoming velvety black on upper tail-coverts and around on sides of crissum; middle wing-coverts bright chestnut; the lesser dull brownish gray, the greater velvety black; speculum white, rather narrowly, the outer secondaries black and dusky, the bounding tertials plain fuscous; belly white or grayish, obscurely barred posteriorly; under

tail-coverts glossy black; the flanks heavily and finely barred dusky-and-white; axillars and lining of wings white. Bill blue-black; legs and feet dull orange, the webs dusky. *Adult male in breeding season:* "Similar to winter male, but colors duller, crown dusky, rump and breast tinged with rusty, and underparts more spotted with dusky" (Ridgway). *Adult female:* Head and neck much as in adult male, but remaining plumage much more coarsely patterned; feathers brownish dusky with simple fulvous edgings; the scaling of flanks especially coarse; no black on tail-coverts; the black tips of greater coverts and the white speculum being the most "holding" characters. Length 482.6-558.8 (19.00-22.00); wing 269.2 (10.60); tail 114.3 (4.50); bill 42.4 (1.67); tarsus 40.6 (1.60). Female smaller.

Recognition Marks.—Something under Mallard size; *white speculum* distinctive; crissum (of male) abruptly black.

Nesting.—*Nest:* On the ground near water or in meadows, of grasses lined with down. *Down:* Dark mouse-gray or dusky with whitish center. *Eggs:* 8 to 12; creamy white or pale yellowish gray. Av. size 53.1 x 39.9 (2.09 x 1.57). *Season:* c. June 10; one brood.

General Range.—Northern Hemisphere, breeding north to Iceland and Scandinavia; south in winter to Abyssinia, India, China, and Mexico. In America breeding from southern British Columbia, central Alberta, and central Keewatin, south to southern Wisconsin, northern Nebraska, southern Colorado, and southern California; wintering south to southern Lower California, central Mexico and Florida. Accidental in Bermuda, Cuba, and Jamaica.

Distribution in California.—Not common resident on fresh-water lakes and reservoirs and flooded lands. Breeds chiefly in the San Joaquin-Sacramento Valley and in the Modoc region. Has bred also at San Jacinto (Mystic) Lake in Riverside County. Numbers augmented during migrations and in winter with some coastwise movement.

Authorities.—**Woodhouse** (*Chaulelasmus strepera*), Rep. Sitgreaves Exped. Col. R., 1853, p. 104 (common in Calif.); *McAtee*, U. S. Dept. Agric., Biol. Surv Circular, no. 81, 1911, p. 1 (food); *H. C. Bryant*, Condor, vol. xvi., 1914, p. 222.

ALTHOUGH rated "nearly cosmopolitan" (A. O. U. Committee) and "fairly common resident west of the Sierra Nevada" (Grinnell), the Gadwall is far from being one of the best known ducks. Especially is this the case in California, where it is probably the least known of the breeding *Anatinæ*. The reputation of scarcity, which a general lack of acquaintance gives to this bird, is due to several causes. In the first place, the birds are of a sober, rather nondescript appearance. The "recognition marks" have to be specially sought for even in the male. The birds seem to do nothing whatever out of the ordinary; and so they seem to travel, as it were, in the shadow of the better-known forms. And the Gadwall does not largely participate in the northern migrations The return movements of autumn, or late August, are early and rapid, and occur before the gunners are astir for "the season."

In habits the Gadwall most nearly resembles the Mallard. Like that bird it frequents the borders of marshes and weed-grown streams, where

it feeds upon the leaves and roots of aquatic plants, which it obtains both by diving and dabbling. It is not averse to varying its diet by occasional insects and small fish, or it may resort to stubble-fields, by night, to obtain its share of the fallen grain. The Gadwall is at all times a clean feeder, and its flesh is highly prized for the table.

The nesting of the Gadwall is a little later than that of the Mallard, taking place with us in May or early June. Any weed-grown field or grassy stretch within a hundred yards of water is suitable, and the female displays great strategy in stealing to her eggs. A mere depression in the ground, well sheltered by over-arching vegetation, is all the bird asks at the outset, but as the deposition of eggs progresses, the duck adds grasses and soft vegetable materials of various sorts, until quite a respectable accumulation results. When the set is nearly complete, an abundance of dark gray down is plucked from the bird's breast and distributed not only under the eggs but along the sides of the nest, so that when the mother is obliged to leave, a coverlet of down may be neatly and quickly drawn over the whole. This downy spread appears to serve a treble purpose; it both retains the natural warmth of the eggs and excludes the rays of the sun, which are over-ardent at times, and it effectually screens the eggs from observation.

The bird's behavior when surprised depends altogether upon the stage of incubation reached. In general, the bird sits close until discovered; after that, if the eggs are fresh, the duck may flee upon sighting her enemy a hundred yards away; but if the eggs are near hatching, she will endeavor to lead the investigator astray by painfully dragging herself through the grass. If too much harassed, however, she will desert her eggs outright rather than wait for what she regards as an inevitable doom; and the same remark will apply to almost any of the nesting ducks.

Gadwalls' eggs are of the creamy type, and thus closely resemble those of the American Wigeon; but are easily distinguishable from those of Shovellers, which have a greenish tinge. Complete sets vary from eight to thirteen, but eleven is the normal full clutch.

Mr. Harold C. Bryant in his "Survey of the Breeding Grounds of Ducks in California in 1914" found nests of the Gadwall only at Los Baños; and though he found four such nests he concluded: "We must consider this species as comparatively uncommon during the nesting season in this vicinity."

No. 347

European Widgeon

A. O. U. No. 136. **Mareca penelope** (Linnæus).

Description.—*Adult male:* Similar to that of *M. americana*, but top of head buffy or creamy buff instead of white,—green wanting or showing only in traces; throat blackish; *rest of head and neck rufous-brown* (auburn). *Adult female:* Similar to that of *M. americana*, but head and neck deeper ochraceous-buff or rusty. Size of *americana*.

Nesting.—Does not breed in California. *Nest* and *Eggs:* Much as in *M. americana*.

General Range.—Chiefly the Eastern Hemisphere, breeding northerly from Iceland to Kamschatka; wintering south to Abyssinia, India, China, and even Borneo. A casual visitor to various American localities, and coastwise to Florida and California.

Occurrence in California.—An occasional winter visitor. Many records.

Authorities.—Cooper, Proc. Calif. Acad. Sci., vol. iv., 1868, p. 9 (San Francisco market); *C. H. Townsend*, Auk, vol. iii., 1886, p. 491 (Eureka); *Grinnell, Bryant and Storer*, Game Birds Calif., 1918, p. 111 (desc., habits, occurrence, etc.); *Colburn*, Condor, vol. xxiii., 1921, p. 65 (Guadalupe, Santa Barbara Co.).

IN NO OTHER case within my knowledge has the gregarious instinct so betrayed the migration instinct, or led it to so many lapses, as in the case of the European Widgeon. The bird is not known to breed in America, nor even in Greenland, yet the map of the United States is peppered with record stations of its occurrence in winter and in migrations. There are a dozen such records for California, and the number is being steadily augmented. The marks of difference between *penelope* and *americana* are decided, and apparently unbridgeable, or we should begin to suspect reversion or dichroism, or some other obscure physical manifestation. We do not know where in the dim North the breeding range of our ducks overlaps that of *penelope*, nor where the wanderers run foul of our superior attractions. European Widgeons are like meteors in the sportsman's firmament, and it is a pretty game to see who will bring in the next aerolite.

No. 348

Baldpate

A. O. U. No. 137. **Mareca americana** (Gmelin).

Synonyms.—American Widgeon. Wigeon. Green-headed Wigeon.

Description.—*Adult male:* Head and neck white or light buffy, thickly speckled, except on forehead and crown, with dusky; a space from eye along side of crown

to occiput bright glossy green, the color scattering behind; fore-neck and upper breast, sides of breast broadly, and sides narrowly, deep vinaceous, edged more or less with hoary vinaceous; the sides with fine wavy bars; back and scapulars similar, black-and-white-barred, and heavily tinged with vinaceous; tertials lanceolate, velvety black, with greenish reflections on outer webs, and narrowly bordered on outer margin with gray and white; wing-coverts mostly white, the lesser brownish gray, the greater tipped with black; speculum dull black with green gloss only on anterior inner portion, the inner bounding feathers abruptly gray; rump cold brownish gray, lightening to grayish white on upper tail-coverts, both finely wavy-barred with dusky; tail tapering, the feathers sharply acuminate; the central feathers blackish, the lateral ones ashy gray; lower breast and belly white; crissum abruptly black; axillars white; lining of of wings white and brownish gray. Bill grayish dusky, blackening below and black on tip; feet dull grayish dusky; darker webbed. Old drakes have the extreme chin dusky, and are otherwise lighter about the bill, nearly immaculate on throat, and pure white on crown. *Adult female:* Without white or green on head,—uniformly streaked instead; vinaceous replaced by dull cinnamon-brown; obscurely mixed with dusky, and edged with brownish gray; above dusky or fuscous, barred or edged on back with dull ochraceous; wing-coverts grayish brown sharply edged with white; *speculum and boundaries as in male;* no solid black on upper tail-coverts and crissum,—fuscous or brownish and whitish instead. Length 457.2-558.8 (18.00-22.00); wing 266.7 (10.50); tail 76.2-114.3 (3.00-4.50); bill 38.1 (1.50); tarsus 39.6 (1.56).

Recognition Marks.—Under Mallard size; white "pate" and green head-patches of male; *white of middle and greater wing-coverts;* speculum diagnostic. Head *not* cinnamon-red, as distinguished from *M. penelope* (H.).

Nesting.—*Nest:* On the ground in meadow or near water; well constructed of grasses lined with feathers. *Down:* Dark mouse-gray or dusky with white centers. *Eggs:* 8 to 12; creamy white or pale yellowish gray. Av. size 55.1 x 38.8 (2.17 x 1.53). *Season:* c. June 1st; one brood.

General Range.—North America. Breeds from northwestern Alaska and northwestern Mackenzie east to central Keewatin, south to northern Indiana, southern Wisconsin, Kansas, Utah, and northern California; winters from Maryland and Delaware (casually to Massachusetts), southern Illinois, Arizona, and southern British Columbia, south to the West Indies, Costa Rica, and southern Lower California. Accidental in Hawaii and Europe.

Distribution in California.—Common winter resident, chiefly upon fresh water, throughout the State. Occurs also on shoal water bays and on brackish ponds. Sparingly resident in summer, at least in the Modoc region.

Authorities.—Gambel, Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Dawson,* Condor, vol. xviii., 1916, p. 24 (Davis Creek, Modoc Co.; breeding).

THERE ARE, roughly speaking, four ways of securing a practical acquaintance with any one of the more esteemed table ducks. Each method is limited, and the several ways must be pieced together if one would have anything like a complete knowledge of the species or an insight into duck psychology. The first way is the way of the sportsman. He will tell you that the Widgeon is best known by its lisping, throaty whistle, repeated three times in quick succession. This note is sur-

prisingly light in character for the size of the bird, and serves, thus, to confirm the bird's position next to the Teals upon our list. Although quite impossible to describe, the note is easily imitated by one who has heard it a few times, and its mastery forms a useful addition to the repertoire of the wild-fowl hunter. The only other "natural" note they utter is a low, short chattering, somewhat resembling that of the Pintail, but greatly reduced in volume. Their quacks, or squawks, of alarm also express the limit of terror, but they are still pathetically inadequate in comparison with those, say, of a hen Mallard.

Taken at Elkhorn, Monterey County *Photo by the Author*

AMERICAN WIGEON, RISING SHARPLY

According to Mr. Bowles: "Widgeons are prime favorites with every sportsman, largely because they are so willing to come in and visit a few well-placed decoys. So sociable is the bird's disposition that a lone Baldpate will often return to the decoys after several shots have been fired at him. Their bump of curiosity is also unquestionably developed to an abnormal extent, for I have crawled to within a couple of hundred yards of a flock and lured them up to within ten yards of me simply by lighting a pipe and puffing a cloud of smoke into the air at short intervals."

Widgeons are surface-feeding ducks, and obtain their food by dabbling and tipping either in pursuit of floating seeds or sluggish insects,

or else through seizing the foliage of various water-weeds, among them "Widgeon grass" (*Ruppia maritima*). But these birds have also built up a cleverer and less defensible system of foraging. With shameless effrontery they follow the diving operations of some of the more expert species of water-fowl, especially the Canvasbacks, Lesser Scaups, and Coots, and seize their winnings on the first moment of their victim's emergence. In this way they enjoy both "sport" and booty, and the sapidity of their flesh is at least equal to that of their hard-working dupes. All this and very much more the sportsman can tell us.

The second way to pursue the acquaintance of ducks is the way of the bird-student. Armed, of necessity, with a pair of high-powered binoculars, he spies upon the ducks as they gather along the shores of some protected lagoon, preening and snoozing and gabbling by turns, or else as they huddle apprehensively toward the center of some less certainly protected lake or reservoir, heads up, and peeping apprehensively. The student has a pained consciousness that he is sitting at the second table, so far as knowledge of the ducks is concerned, and that through no fault of his the birds are behaving in a strained or artificial

Taken in Modoc County NEST AND EGGS OF AMERICAN WIGEON *Photo by the Author*

manner. The knowledge thus gained is manifestly far from satisfying.

The third method, if I may call it such under its myriad fashions, is to cultivate, deliberately, the good will of the duck, to put him at his ease, and to provide for his creature comforts to the extent that he will come to act with perfect naturalness. Needless to say, this can be secured only by absolute protection, that is, the establishment of reserves and sanctuaries. And if to this negative assistance be added some method of feeding, a regular distribution of grain or table scraps, or, better still, the planting along water-courses or over the shallows of plants esteemed by the ducks as food, the confidence, the freedom of action, the vivacious and playful behavior which may be secured on the part of the ducks will be gratifying in the extreme.

Needless to say, also, a combination of the first and third methods is perfectly legitimate. The establishment of game farms and the utilization of our waste places, such as brackish lagoons and the interior lakes, for wild fowl propagation, will one day have to supplant our present wasteful policy of haphazard breeding and privileged shooting.

The fourth method, or opportunity, for bird study is to be found only upon the breeding grounds of the ducks. This is, however, by no means the place of privilege that it is in the case of most other birds. The ducks know how to be very secretive in their movements in connection with nest-building and incubation, as well as in their care of young. Again, the bird student must accept the role of spy, and content himself with scraps of information laboriously gleaned. Thus, he will learn of the Widgeon that the female seeks a grassy or weed-crowded area not too far from water. The first egg is deposited upon the surface of the ground or in some slight natural depression. As the number of eggs increases she begins to gather bits of dead grass or macerated weed-stalks for a scanty lining. The chief interest, however, is in the securing of abundant food, and in enjoying the company of the handsome drake, who is very attentive at this season. When the egg complement is reached, eight or ten or twelve, or whatever it may be, her breast is plucked of its down to provide a copious lining and blanket. The male is banished so thoroughly that he hunts up his similarly exiled fellows and goes in for club life; while his late spouse settles to the long vigil which is at once the tenderest, the most pathetic, and the most useful of nature's offices. Four weeks of tense concentration, relieved only by surreptitious visits to the feeding grounds—an hour or so thus spent out of twenty-four—four weeks of harrowing anxiety relative to blundering foot-steps, whether of man or ox, or of far more purposeful patter of light foot-falls, guided by sharp noses and urged by sharper teeth, of weasel, mink, coyote, or raccoon. All these dangers survived, the

miracle of patience discloses that twinned and ineffable miracle of birth. A dozen offspring in a day, or so we say. Anyhow, the youngsters start even, and I only wish we had time, or skill, to follow them through that wonderland of adventurous youth.

No. 349

European Teal

A. O. U. No. 138. **Nettion crecca** (Linnæus).

Description.—*Adult male:* Much like that of succeeding species, but lacking white crescent on side of breast; bordering white along green patch of head more decided; vermiculation of sides, etc., broader and coarser; the outer scapulars buffy, bordered with black on the outer edge. Female indistinguishable from that of *N. carolinense.*

Nesting.—Does not breed in California. *Nest* and *Eggs:* Indistinguishable from those of *N. carolinense.*

General Range.—Northern Europe and northern Asia; wintering south to Arabia, Ceylon, and China. Casual in Greenland and along the Atlantic coast of North America.

Occurrence in California.—Recognition based solely on Cooper's statement (Auk, vol. iii., p. 125, confirming Proc. Calif. Acad. Nat. Sci., 1868, vol. iv.): "Also found not rarely in California."

THE DUCKS are good neighbors and "wings across the sea" was their motto long before we got chummy with John Bull. Our birds have been returning the visits made by *Mareca penelope* and *Nettion crecca;* so that the names of *Mareca americana* and *Nettion carolinense* and *Querquedula discors*, distinguished Americans all, appear on both English and Continental guest books.

Concerning the visits of *N. crecca*, we have only the assertion of Dr. Cooper[1] that it was "also found not rarely in California," and the surmise of Belding[2] that it may have bred in the Stockton marshes. Concerning the latter supposition we may say that no comparable instance of a bird's breeding thousands of miles from its proper haunt is on record. It is probably a case of mistaken identity, apropos of which may be quoted the remark of the English authority, Howard Saunders.[3] Under the caption of "The American Green-winged Teal," he says: "The female so closely resembles that of our Teal [i. e. *Nettion crecca*] that I am unable to give any specific characters."

[1]Auk, Vol. III., Jan. 1886, p. 125.
[2]Pac. Coast Avifauna, No. 11, p. 33, 1915.
[3]Manual of British Birds, p. 433.

No. 350

Green-winged Teal

A. O. U. No. 139. **Nettion carolinense** (Gmelin).

Synonyms.—American Green-winged Teal. Green-wing.

Description.—*Adult male:* Head and upper neck bright chestnut, blackening on chin; darker on forehead and crown, with a glossy green patch from and including eye to nape, usually separated from chestnut below by a narrow white line which is sometimes traceable to bill; a short occipital crest velvety purplish black; a crescentic white patch on side of breast before wing; sides of breast and sides, back, and scapulars continuous with narrow cervical collar, black and white in fine wavy bars or vermiculations; fore-neck and breast brownish buff, fading to silky white or buffy on belly, heavily marked anteriorly with round spots, more or less concealed, or not, according to age and season (?); wing-coverts, inter-scapulars, tertiaries, rump, and posterior parts, slaty gray or fuscous with an olivaceous or ochraceous tinge; speculum shining green, velvety purplish black on outer feathers, bounded in front by chestnut or fawn tips of greater coverts, behind narrowly by white, and on inner margin by abrupt black of outer tertiary; crissum velvety purplish black with a partially enclosed creamy or buff patch on either side. Bill livid black; feet and legs dusky bluish; iris brown. *Adult female:* Speculum substantially as in male; no other trace of pattern of male save white patch on side of crissum; upperparts brownish dusky, tinged with greenish and edged with lighter; head and neck dusky brown, streaked with ochraceous above, elsewhere pale buffy, speckled with dusky; breast and sides brownish dusky, ochraceous-brown, and whitish, the former in crescentic and U-shaped markings, and the whole suffused with brownish buffy; belly and crissum pale buffy or brownish buffy, obscurely spotted and streaked with darker. Length 317.5-381 (12.50-15.00); av. of six males: wing 179.8 (7.08); tail 66.8 (2.63); bill 37.6 (1.48); tarsus 30.2 (1.19).

Recognition Marks.—The smallest duck; chestnut and green head of male; black and shining green speculum, with size, distinctive.

Nesting.—*Nest:* On the ground, of weeds and grasses, lined with feathers and down. *Eggs:* 6 to 8, rarely 10 to 12; dull creamy white, pale grayish yellow, or greenish buff. Av. size 45 x 32.3 (1.77 x 1.27). *Season:* c. June 1st; one brood.

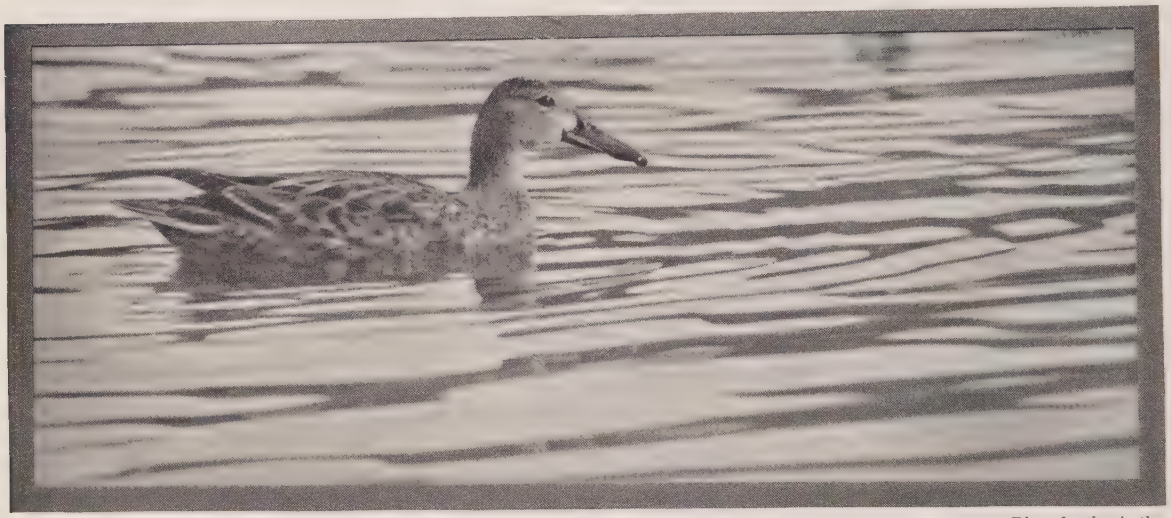
General Range.—North America. Breeds from the western Arctic coast, central Keewatin, and Newfoundland, south through the eastern Canadian Provinces to northern Illinois, Nebraska, northern New Mexico, and southern California. Winters from the Aleutian Islands and across the continent from the southern edge of the ice-line south to the West Indies, Honduras, and Lower California. Accidental in the British Isles, Bermuda, Greenland, and Hawaii.

Distribution in California.—Common during migrations and in winter, chiefly upon fresh water. Breeds very sparingly and locally. Recorded as a breeder from Ventura County (Evermann), Kings County (Tulare Lake, Goldman), Alameda County (Alvarado, Dirks), and Plumas County (Sierra Valley, Belding). Also Davis Creek, Modoc County, June, 1912.

Authorities.—**Gambel** (*Querquedula carolinense*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *Evermann*, Auk, vol. iii., 1886, p. 89 (Ventura Co., nesting); *Goldman*, Condor, vol. x., 1908, p. 129 (Tulare Lake, nesting).

The Green-winged Teal

THE RARE beauty of this diminutive duck is not likely to escape notice, and its flesh has received a correspondingly high rating, even though it does take two birds on a single plate to provide a meal for a hungry man. Although no longer common, the Green-wing is probably still the best distributed of any of the California ducks. Its requirements of space and fare are so modest that it may be found upon all the smaller creeks and ponds, irrigating ditches even. Normally these ducks are



Taken near Santa Barbara *Photo by the Author*

LADY GREENWING

highly gregarious, and the quick evolutions of a close-set flock of, say, fifty birds, form a spectacle to make men marvel. Not the best of our aerial circuses will ever attain such flexibility or precision of action. Long persecution, however, has scattered the ancient hordes, and strongly discouraged the flocking tendency. Twos and threes and half dozens are a common sight, and their continued pursuit falls to the farmer boy rather than to the clubman.

The Green-winged Teal obtains its food not alone by tipping and dabbling, but by agile search on foot. The bird walks with ease and grace, and fallen seeds, nuts, grain, rice, berries, and acorns are as eagerly sought as are the worms and snails of the lesser mud-flats.

The call-note of the Teal is a miniature "quack" with a whistling quality, and it is probably uttered only by the female. Whatever be the case with the human species—and now that suffrage is an accomplished fact, we are less bold than in some of our former allegations—it is unquestionable that the duck ladies have practically usurped the

powers of speech, and have thus reduced their titular lords to the most abject state of acquiescence.

Astonishing accounts continue to come in of the Green-winged Teal as a breeding bird of California. It does not breed in any considerable numbers in the states to northward of us, but the evidence seems to be conclusive that the species does breed with us, and that in widely scattered and most unlikely localities. Dr. Evermann's record appears to be the first, and he simply states[1] that a few breed in Ventura County. Mr. E. A. Goldman made the first specific report[2] of a set of seven eggs taken, with the female, July 7th, 1907, on the west shore of Tulare Lake. He found other birds near by and judged that there might be quite a colony of them. Later, Mr. W. N. Dirks[3] found the species breeding commonly on the salt marshes near Alvarado, in Alameda County. Six specific records were made there in the summer of 1915, and several sets of eggs taken in May hatched out Green-wings at the State Game Farm near Hayward.

No. 351

Blue-winged Teal

A. O. U. No. 140. **Querquedula discors** (Linnæus).

Description.—*Adult male:* Forehead and crown (narrowly) and region about base of bill bright blackish; a large white crescent on side of face before eye; rest of head and upper neck warm plumbeous, with metallic, wine-purple reflections (like the plumage of certain doves); fore-neck and entire underparts to crissum, including lengthened feathers of sides (nearly meeting across back when wings are folded) purplish vinaceous or purplish chestnut, heaviest on breast, paling laterally, spotted on crop and sides, and barred on breast, belly, and longer flank feathers, with blackish; upper back and scapulars greenish fuscous, with narrow and elongated V-shaped markings of vinaceous-cinnamon; inner scapulars and tertiaries, narrow and elongated, greenish dusky, striped with vinaceous-cinnamon; lower back and behind nearly plain dusky; crissum and tail externally blackish; flanks white; wing-coverts and outer webs of outer scapulars and tertiaries a beautiful light grayish blue; speculum shining bronzy green (not so bright as in *Nettion carolinense*, more "sickly") with dusky on either side, and bordered in front by broad white tips of greater coverts; axillars and lining of wings mostly white. Bill grayish black; feet dingy yellow with dusky webs and claws; iris brown. *Adult female (and male in summer)*: Wing substantially as before, or greater coverts not so extensively white-tipped; no other indication of prime pattern; head, neck, and underparts dull buffy or pale brownish buff; the first two finely streaked, save on chin and upper throat, the last variously spotted and marked with dusky, lightening on belly; back and scapulars brownish dusky, blackening on longer feathers, narrowly edged with

[1]Auk, Vol. III., Jan. 1886, p. 89.
[2]Condor, Vol. X., p. 129.
[3]Cal. Fish and Game, Vol. 2, No. 1 ,p. 46.

light brownish. *Young:* "Similar to adult female, but whole belly immaculate, and speculum dull grayish brown without metallic gloss" (Ridgw.). Length 368.3-406.4 (14.50-16.00); av. of six males: wing 186.4 (7.34); tail 66 (2.60); bill 40.6 (1.60); tarsus 30.5 (1.20).

Recognition Marks.—"Teal" size; white facial crescent of male; grayish blue wing-coverts distinctive (except from *Q. c. cyanoptera*, which is otherwise quite different).

Nesting.— *Nest:* Of grasses, etc., lined with down; on the ground usually near fresh water. *Eggs:* 6 to 12; pale creamy or dull ivory-yellow with a tinge of green. Av. size 45.7 x 32.5 (1.80 x 1.28). *Season:* c. June 1st; one brood.

General Range.—North and South America. Breeds from British Columbia, Great Slave Lake, Ungava, and Newfoundland, south sparingly to New England and the northern tier of eastern states, southern Indiana, Missouri, northern New Mexico, and northeastern California. Winters from British Columbia, southern Illinois, and Delaware south to West Indies, and in South America to Chile and Brazil.

Occurrence in California.—Not common migrant and winter visitor. The "fall" migrations occur very early and so escape the notice of sportsmen; e. g., Santa Barbara, Aug. 25, 1915, flock of 20. Sparingly resident in summer east of the Sierra Nevada (Laws, northern Inyo County, May 21, 1919—unquestionably breeding).

Authorities.—Belding, Zoe, vol. iii., 1891, p. 97 (Stockton, San Diego, and Agua Caliente); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 23 (occurrence in s. Calif.); *Dawson*, Condor, vol. xviii., 1916, p. 24 (Santa Barbara).

THE PRESENCE of this species, justly accounted one of the rarer ducks of California, upon Stow Lake in Golden Gate Park, in November, 1910, served to emphasize the fact that opportunity with the birds, and especially with water-birds, is purely a matter of the *degree of protection* afforded them. If protection were absolute, so that the birds did not even have to fear clubs in treacherous hands, nine-tenths of our wild ducks could be taught to eat out of our fingers within three years. If you are skeptical, visit Stow Lake, in the heart of San Francisco.

Stow "Lake" is little better than a wide canal surrounding a circular hill. In the two widest places, certain portions toward the outer shore are fenced off and forbidden to boats. A tiny wooded island in each instance gives shelter to the shyest birds, which lurk under the overhanging draperies. Boats are allowed on the remainder of the lake's surface, and the ubiquitous small boy throws stones as usual, but in spite of these little disadvantages the birds thrive mightily. There are swans on the lake, and geese of five varieties, of which four, viz., Hutchins, Cackling, American White-fronted, and the Lesser Snow Goose, are of wild stock. These are all, I suppose, wing-tipped birds, and they act in a measure as decoys. There is no doubt, however, of the feral character of the rest of the bird population. Ducks are constantly arriving from the ocean a mile or so away, while others, resenting the near approach of pleasure boats to which they are not yet quite accustomed, make off in alarm.

My first glimpse of Stow Lake was on a Saturday in November, 1910. In the southwestern corner of the watery circle, in the shelter of the little island, a dozen Mallards and as many Widgeons submitted, rather uncomfortably, to inspection. Aided by a passing boat on the other side, I passed within twenty feet of a nervous bunch which included one American Golden-eye; but when I returned with the camera a few moments later, they made off as one bird.

The Coots, or "Mud Hens," were as tame as "chickens." They swarmed over the banks in search of bugs, or plucked grass like geese, or fought for crumbs under the very feet of the passerby. Their abundance and fearlessness appeared to exert a restraining influence on the wild ducks, with which, of course, they freely mingled.

It was at the eastern end of the lake, however, that the ducks really congregated. Here there were at no time less than a hundred ducks of some ten species, exclusive of coots and semi-domesticated geese; yet their number and complexion was continually changing. Here, on the 19th of November, I saw a little company of Blue-winged Teals, along with Widgeons, Mallards, Pintails, Shovellers, both the Scaups (Greater and Lesser), American Golden-eye, Bufflehead and Ruddy Ducks.

Curious to note what effect the Sunday crowds would have upon bird-life, I returned the following afternoon. The object lesson of protection was even more striking; for while there were as many ducks in evidence as on the previous day, people were at least ten times as numerous. At one time I counted 145 ducks of eight species upon the east arm of the lake, all within a stone's throw of shore, where over a hundred people surrounded them. Their retreat, furthermore, was cut off by six passing boatloads of merrymakers in the channel. Yet here the wild ducks came by preference, and while the bolder of their numbers crowded the bread-line just offshore, the more timid tucked head under wing and slept, thankful to have escaped the grilling gun-fire to which other humans, just like these (?), had been subjecting them over thousands of acres of marsh lands.

Five other smaller lakes to the westward in this same park also contained ducks and coots in varying quantities. The Mallards were shyest and most ill at ease wherever seen, and they were found in greatest numbers in a neglected pond half grown up to willows. One shallow, open lake, with no protection of shrubbery whatever, was in great demand as a "playground," or rather, mimic sea, for children's boats. Half a dozen miniature yachts under full sail were plying these waters, yet seventy Ruddy Ducks (*Erismatura jamaicensis*) occupied the center of the pond, and seemed to exhibit no fear of the toy boats. Wherefore, it is safe to say that if the public was really trustworthy, so that not even the small boys

would shy stones or say "Shoo" to the birds, the wildest ducks would soon be so reassured that they would eat out of our hands.

No. 352

Cinnamon Teal

A. O. U. No. 141. **Querquedula cyanoptera cyanoptera** (Vieillot).

Synonym.—RED-BREASTED TEAL.

Description.—*Adult male:* Entire plumage, except back and wings, rich chestnut or bay; darker, blackish brown, on crown and on belly; darkest, almost black, on crissum; back and inner scapulars warm dusky, margined with cinnamon or lighter; inner and middle wing-coverts (the latter overlapping and nearly concealing the greater coverts), and the outer webs of outer scapulars and tertials beautiful light grayish blue (Columbian blue); speculum lustrous green, bounded on sides by dusky, and in front, only in part, by white tips of greater coverts; axillars white; under wing-coverts white and dusky. Bill black; feet and legs orange; iris orange. *Adult female* (*and male in post-nuptial plumage*): Similar to corresponding plumage of *Q. discors*, but darker; more of the throat and sometimes chin speckled; breast tinged with tawny; averaging larger. Length 393.7-431.8 (15.50-17.00); wing 189.2 (7.45); tail 73.7 (2.90); bill 45.7 (1.80); tarsus 33.5 (1.32).

Recognition Marks.—Large teal size; heavy chestnut coloration of male distinctive. Females and young require careful discrimination from *Q. discors* (see above).

Nesting.—*Nest:* In grass or heavy weeds near water; of grass and scanty trash, copiously lined with down. *Down:* Dusky with white centers. *Eggs:* 8 to 13, usually 10 or 11; pale creamy or dull grayish yellow (ivory-yellow to cartridge-buff), smooth "oily" surface. Av. size 47.5 x 34.5 (1.87 x 1.36). *Season:* April 20–June; one brood.

Range of *Querquedula cyanoptera.*—North and South America. In North America, from the western provinces of Canada south to Mexico. In South America, from the Straits of Magellan and the Falkland Islands north to Peru and Brazil.

Range of *Q. c. cyanoptera.*—Western North America. Breeds from southern British Columbia and southwestern Alberta, southeastern Wyoming, and western Kansas, south to western Texas, New Mexico, Chihuahua, and northern Lower California. Winters from southern California, New Mexico, and southern Texas, south through Lower California and to central Mexico. Casual at many eastern points.

Distribution in California.—Abundant spring and fall migrant and common summer resident on fresh water practically throughout the State. Sparingly resident in winter at widely separated localities, chiefly in the central valley and in the San Diegan district. Of infallible occurrence at Santa Barbara throughout the year.

Authorities.—**Gambel** (*Pterocyanea discors*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *H. C. Bryant*, Condor, vol. xvi., 1914, pp. 222, 227, 231 (nest and eggs, etc.); *Stephens*, Condor, vol. xxiii., 1921, p. 194 (eclipse plumage).

IF THE BIRD-LOVER confesses a somewhat languid interest in the old standbys of duckdom, Mallard, Widgeon, Shoveller, and the rest, the species which have quacked and spattered their way through literature

Taken on Big Bear Lake *Photo by Wright M. Pierce*

A CALIFORNIA NEST

for generations, it is a far different matter with our champion of the West. For him we are not ashamed to confess a fresh interest and a kindling of desire. Whether our attitude be that of sportsman, bird-lover or student, surely no more alluring spectacle could be afforded than that of a flock of these brilliant chestnut-colored ducks when they rise suddenly from a wayside pond at break of day. It is as though fragments of the rich red earth, from which we are all made, had been startled by the impact of the sun's rays upon the water, and were fleeing toward heaven —earth, air, fire, and water, all in one burst of momentary splendor.

It is only idle folk, however, who can afford finery, and since it is the drake who has nothing to do, he wears all the fine clothes. The female, save for her blue-gray wing-patches, is the plainest-looking body imaginable, and she so closely resembles the female of *Q. discors*, that we seriously wonder if their own mates can always distinguish them. I have seen Blue-wings and Cinnamons associating together during the mating season, and the males appeared to regard each other with jealousy, as though they really feared confusion of brides.

A favorite play on the part of these Teal at mating time is leap-frog. A bird will vault into the air and pass over another's head and down

Taken in Merced County *Photo by the Author*

A RAGTIME DUET
CINNAMON TEAL, DRAKE AND DUCK

again with a great splash; whereupon the other, as likely as not, will return the compliment. This passage occurs oftenest between two males, and does not appear to have any unfriendly motive. When the fortunes of the ensuing season are being decided, the ducks become very much absorbed in their business. At such a time I once stole up through the reeds, where, upon a little "two by four" pond, I could survey six or eight Cinnamon Teal disporting themselves and indulging in courting antics. A male would follow about very closely after his intended, and bob his head by alternately extending and withdrawing his neck in a very lively fashion. Now and then the female would make some slight acknowledgment in the same kind. In at least one instance I witnessed a decisive moment; for, from pretended indifference in the presence of her suitor, a duck suddenly responded to his long bobs of invitation by bobs of approval, equally emphatic, and given face to face; and immediately thereafter she seconded the favored swain in his efforts to drive off discredited rivals. The males were charging upon each other repeatedly with open beaks, but it is hard to believe that they either would or could do each other bodily harm.

The Cinnamon Teal is the commonest breeding duck in California, and its nests probably outnumber those of all other species combined. Where cattails abound, the birds sometimes weave an elevated basket or platform of reeds, after the fashion of the Coot or Redhead. On occasion,

also, they profit by the handiwork of the Redhead, either sharing quarters with the rightful owner, or endeavoring to dispossess her after her basket is woven. But for the most part, this Teal nests on the dry ground where the grass or herbage is thick, and not too far removed from water. Meadowlands and marshy "swales" are, therefore, favorite places, and the gathering of the hay crop is always attended by anxiety and loss on the part of these birds.

Any collector will come upon these lowly nests in the course of a few hours' tramping, but if one wishes to hasten operations a little, or to arrive at a knowledge of general conditions prevailing, the method of dragging must be used. This is accomplished by two workers, each holding the end of a long rope and sweeping it slowly over the grass or weed-tops. The bird flies from under the rope in great terror, but she is never, in our experience, so frightened that she will not return. It is only by the use of some such wholesale method that one may discover the high proportion of loss due to the depredations of "vermin,"—minks, weasels, coyotes, and other four-footed offenders. I once knew of some semi-wild hogs which had formed an incurable habit of robbing ducks' nests. Swimming with ease and "hiding out" upon the islands through the day, these renegades would sally forth at night upon their nefarious quest; and they wrought with almost infallible precision in the ravaging of the breeding ducks of the Los Baños country that season.

These and countless other dangers threatened serve to develop in the nesting Teal a nearly corresponding measure of sagacity. Two instances of this evolution of intelligence may not be amiss.

Taken in Washington *Photo by the Autho*

NEST AND EGGS OF CINNAMON TEAL

Taken at Los Banos *Photo by the Author*

CINNAMON TEALS JUST HATCHED

Two helpers of mine had been dragging a grassy stretch along the shore of Goose Lake in Modoc County, while I plodded after to mark the flushing birds. But the region was not prolific. Disgusted at last with the profitless quest, I gave my consent to a cessation of activities. The work stopped. One of the assistants coiled the rope carefully and plumped it down in the grass. This was too much for the Teal's nerves, and she flushed from her nest not above three feet from where the men were standing. The nest was in a coarse uniform grass, well lined with down, and about forty feet from the shore of the lake.

Not wishing to collect the eggs at once, and fearing that something might befall them in our absence, I laid half a dozen long sticks, culled from the beach, across the nest, and saw to it that they formed an effective barrier. Judge of my surprise, then, when upon returning two hours later the Teal flushed from her eggs at one side of the sticks. I marveled that she should have been strong enough to remove the sticks so

dextrously. And I marveled yet more, when I came to remove the nest-lining, to find it so scanty. In scratching around, however, to secure every scrap, I was led to the *old nesting hollow* under the sticks, which was now overflowing with disturbed nest material. The clever bird had made a new hollow just beside the old one, and had abstracted her eggs one by one from the danger zone, until her complement was full. No doubt, in due time, she would have made use of the forsaken lining also.

The other case was of a bird whose nest we had discovered near camp at Los Baños. There were eleven eggs, and since they were hard set, we dedicated them to posterity and photography. Photography fared ill, however, for when the sitting female found herself increasingly exposed to view by sundry decapitations of surrounding weed-stalks and removal of investing grasses, she became more and more easily frightened, so that we could do nothing with her.

Now the nest was placed at no great distance from a pond, in which the flood waters of the Mendota Canal were increasing daily. On the morning of the 29th of May we saw that the rising water had surrounded the little mother in her pocket of wire-grass, and that the bottom of the nest was damp. But, glory be! One of the eggs is pipped, so that she may be able to make it yet. Returning at eventide from our day's work, we approached the nest in some trepidation, and William exclaimed, "Why! What has become of the down?" Sure enough, the downy walls, with which the nest had been so lavishly provided, were missing. The resourceful mother had used all of the down and a lot of grass besides, in building up the foundations of the nest, and had in this manner succeeded in raising the eggs clear of the water.

The following morning the eggs were hatched, or all save one, and the nest was full of fluffy, confiding, yellow-and-dusky ducklings. They were not only delightful to the eye but irresistible to the hand or the nose, which, even if well educated, still delights to nuzzle "downies." The mother made off with elaborate maladies, but she did not again put in an appearance while we were photographing the brood. Presuming that this would be our only chance, we completed the "sittings" and absented ourselves for an hour or two. When we returned, the nest held only five babies, presumably the younger and weaker members of the brood, which, although very bright-eyed and confident, we surveyed with some misgiving. Upon our return eight hours later, or at early evening, the same five awaited us. They looked a little less confident now, and we were troubled. It was all too evident to us that the timorous mother had alighted at a distance after our first visit, and had led away only those who were strong enough to answer her call, leaving the others to their fate.

Later in the evening, well after nightfall in fact, we went to visit the nest again, determined to play the part of foster mother if a kinder providence had not intervened. But the nest was empty. The poor little waifs had set out at nightfall to seek for themselves their long absent parent. Their plaintive, scattered pipings resounded throughout that section of the swamp, but we could not recover one in the darkness, and of a repentant mother there was no sign. The next day all was still. The prowlers of the night tell no tales. The little tragedy was over. Nothing more was ever seen of the faint-hearted Teal mother and her half-brood. Instinct broke down before the unusual; and the gleam of intelligence shown in meeting the challenge of the flood did not serve to illuminate the darkness of a mentality which could not count its own children.

We call the Cinnamon Teal *our* bird; but if we do, we forget that there is in South America another branch, or race, or geographical representative, of the same stock. So far as known, the "species-splitters" have not succeeded in detecting any valid distinction between the Cinnamon Teal of South America and that of North America,[1] yet the centers of the breeding ranges of the two groups lie some 5000 miles apart, the one in the Pacific States of America and the other in Patagonia; and at no time do the sundered fragments drift closer than within about 2000 miles of each other. It is a situation without an exact parallel, and we are, naturally, very curious to know what might have happened in the pre-glacial past to divide the house of *Q. cyanoptera*.

No. 353

Shoveller

A. O. U. No. 142. **Spatula clypeata** (Linnæus).

Synonyms.—Spoonbill. Spoon-bill Duck. Broad-bill.

Description.—*Adult male:* Head and neck sooty black, overlaid, especially above, with glossy green and glancing metallic blue or purple; lower neck and fore-breast pure white; lower breast, belly, and sides purplish chestnut, the longer side-feathers dusky-barred; back, narrowly, greenish dusky, becoming greenish black on rump and behind, and glossy green on sides of upper tail-coverts; crissum black, separated from belly anteriorly by white, finely undulated with dusky; white flank-patches; inner scapulars white, and inner tertiaries white-striped; wing-coverts and outer webs of outer tertiaries light grayish blue; the posterior row of coverts greenish dusky at base, broadly white-tipped; speculum glossy green bounded on either side by dusky; primaries dusky; axillars and lining of wings white. Bill spatulate, the upper mandible

[1] Later: They got 'em at last!

much broader at tip than lower and enclosing it; lamellæ prominent, deep black; feet orange-red; iris brown. *Adult female:* Wings much as in male, but duller; scapulars like back, and tertiaries not striped; upperparts, except head and neck, plain fuscous glossed posteriorly with greenish; remaining plumage buffy or buffy white, spotted with brownish fuscous; head and neck narrowly streaked with dusky; lower breast tinged with brownish. Bill brown above, orange below. *Young male:* Like adult female but colors heavier, and belly tinged with chestnut. *Young female:* Similar to adult but wing-coverts dull slaty gray, only faintly tinged with bluish or greenish; speculum not so extensively glossy green. Length 431.8-533.4 (17.00-21.00); wing 228.6-254 (9.00-10.00); tail 76.2-88.9 (3.00-3.50); culmen 63.5-73.7 (2.50-2.90); breadth of bill near tip 30.5 (1.20); tarsus 38.1 (1.50).

Recognition Marks.—Smaller than Mallard; bill broadened at tip distinctive; male with white breast and rich chestnut belly.

Nesting.—*Nest:* On the ground in meadow or near marsh, lined with weed-stalks and grasses, or broken reeds and down. *Down:* Dark mouse-gray or dusky, with whitish centers. *Eggs:* 6 to 10; light greenish gray (yellowish glaucous). Av. size 53.9 x 37.6 (2.12 x 1.48). *Season:* May–June; one brood.

General Range.—Northern Hemisphere, breeding north to about Latitude 68°; south in winter to central Africa, Ceylon, Formosa, and Colombia. In America, breeds chiefly westerly from northwestern Alaska, northwestern Mackenzie, and southern Keewatin, south to southern California, central New Mexico, northern Texas, Missouri, and northern Indiana. Winters from British Columbia, Arizona, New Mexico, southern Illinois, and Delaware, south to the West Indies, Colombia, and Hawaii.

Distribution in California.—Abundant winter resident, chiefly on fresh water throughout the State, lingering late into spring. Breeds sparingly at widely separated localities, in Los Angeles, Kings, Fresno, Merced, Alameda, and Solano counties (Grinnell, Bryant, and Storer). Also Inyo and Modoc counties.

Authorities.—Gambel, Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *Emerson,* Condor, vol. iii., 1901, p. 116 (Alameda Co.; desc. nest and eggs); *Goldman,* Condor, vol. x., 1908, p. 202 (Tulare Lake, breeding); *McAtee,* Auk, vol. xxxix., 1922, p. 380 (food; habits).

ONE GLANCE at the long, broadly spatulate bill of the "Spoonbill," or Shoveller, is quite sufficient to establish the bird's identity in the mind of any one who has ever even heard one of its names. This huge bill not only gives its owner a top-heavy appearance, but gives the impression of a larger bird than the measurements warrant. The bird is rather less of a vegetarian than most of its kind. It eschews grain, and is not so partial to water-cresses and succulent browse as are Mallards and Widgeon. The roots of aquatic plants are eaten, but insects, tadpoles, snails, and small fish are a preferred diet. Much of the bird's food is secured in the shallow water or mud, which is scooped up liberally and sifted through the lamellæ of the beak until only edible portions are retained. In spite of this diet, the Shoveller's flesh is seldom or never "fishy," and so far as flavor is concerned, it makes a welcome addition to the table.

Taken in San Francisco *Photo by the Author*

A QUIET CORNER OF STOW LAKE

Highly gregarious at all times, it is in the pursuit of food that the Shovellers have developed a curious communal habit, called by the sportsmen "milling." This operation may be carried on by a dozen or by a hundred birds *en masse*, and consists of paddling with increasing speed upon the surface of the water, presumably with *the outside foot*, until the whole mass of birds experiences a rapid circular or elliptical motion. The birds' bodies are in actual contact, but their heads are all below, greed-

Taken near Santa Barbara *Photo by the Author*

BEHIND THE SCREEN

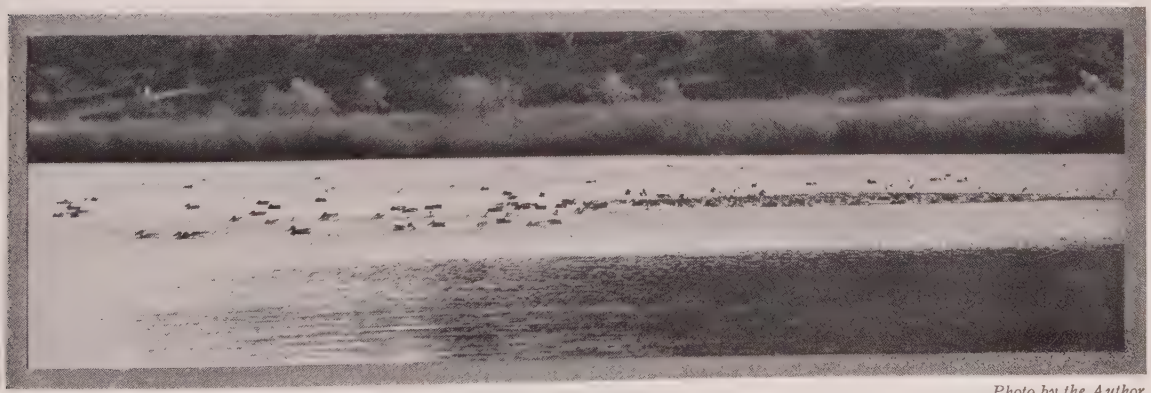
Taken near Santa Barbara *Photo by the Author*

THE QUIET HOUR

DUCKS, CHIEFLY SHOVELLERS, AS VIEWED FROM A BLIND ON LAGUNA BLANCA

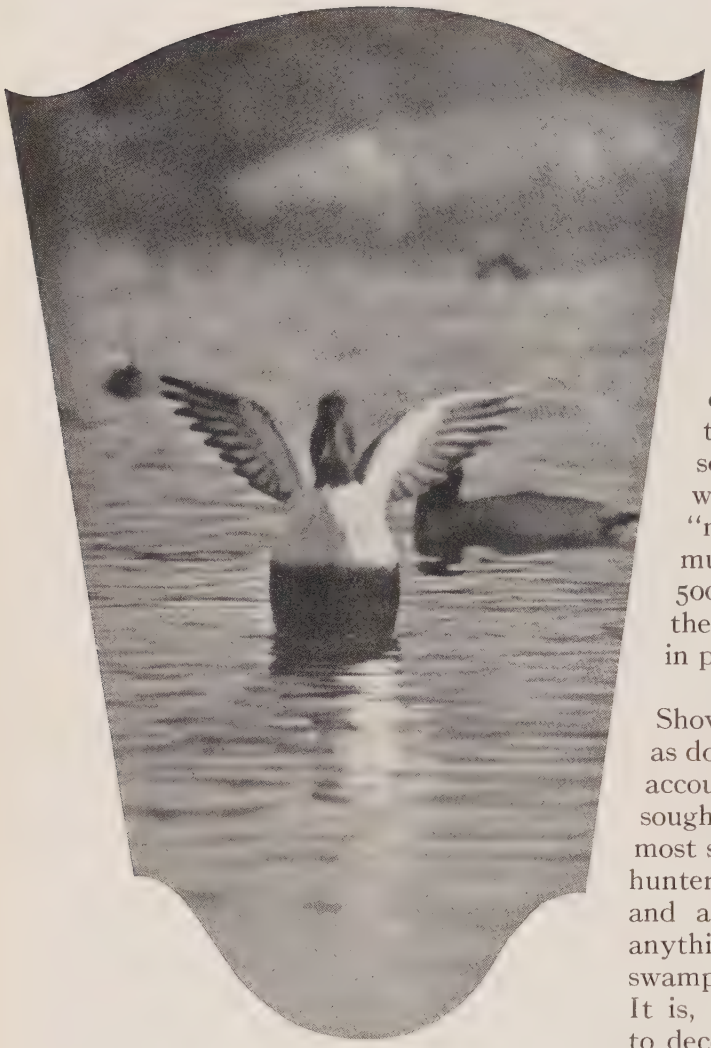
ily sifting the turbulent waters, whose hitherto hidden dainties their combined efforts have succeeded in stirring up.

At Laguna Blanca, where most of the accompanying photographs were taken, the ducks enjoyed a measure of protection, and, so, were free to indulge these milling tactics, a close absorption in which puts the birds at a decided disadvantage. Indeed, in the pursuit of my innocent ends, I learned to slip up on the birds when every man Jack of them had his head down. When the shutter roared, there was confusion and flight. But cameras kill no ducks, and so the hungry Shovellers ventured back



Taken near Santa Barbara *Photo by the Author*

MILLING



Taken in San Francisco *Photo by the Author*

THE LOOK-AT-ME POSE
MALE SPOONBILL ON STOW LAKE

again and again. Immediately upon settling after a scare, the birds by scores and dozens will rise and stand upon their tails and flutter their wings, as though to reassure themselves of safety. A curious muffled roar is produced by the sum of these operations, and when the birds are numerous, this sound is sustained for some time with remarkable uniformity. A "mill" observed here one evening must have numbered upwards of 500 birds in one solid mass, and there were other lesser operations in progress at the same time.

For some unknown reason Shovellers seldom become very fat, as do most other ducks, and on this account they are not very much sought after by sportsmen. Their most striking characteristic from the hunter's standpoint is curiosity—this and artless innocence. If there is anything unusual going on in the swamp, the Shoveller wants to see. It is, therefore, the easiest of birds to decoy. Once when Mr. Bowles's dog was retrieving a duck in open water, a drake Shoveller came flying up, noted something interesting, and settled promptly within a foot of dog and bird. However, if frightened, or on a flyway, it requires a good shot to bring a Shoveller to bag, as it is almost as swift a-wing as any of the Teals.

The plumage of this duck is very handsome, and some of its feathers are of special interest to the bird-student. Thus the markings of the drake combine in a striking degree the essential characters of both the Mallard and the Blue-winged Teal. Its head is of iridescent green, its lower parts are chestnut, and its feet red—all characteristic of the male Mallard—while its wing is practically an enlarged edition of the drake

Blue-wing. The bird's eye, moreover, is golden, like that of the genus *Clangula*, and in its striped scapulars as well as in the pattern of coloration on flanks and tail-coverts the bird recalls the lordly Pintail.

The nesting of the Shoveller is not differentiated from that of a half dozen other river ducks, which resort to lowland meadows and weedy

Taken near Santa Barbara *Photo by the Author*

GENERAL EXODUS

areas adjacent to swamps. Ten or eleven eggs, buffy as to hue, with a greenish cast, are placed in a grass-lined depression on the ground; and when the set nears completion an abundance of dark down is provided, both to retain the parental warmth, and to screen the eggs from observation in the owner's absence. One curious fact came to light in the course of a season's nesting; namely, the dependence of the ducks upon the presence of Meadowlarks. We found that the close proximity of these

two very diverse species was no chance coincidence, but a very practical rule, insomuch that whenever, in dragging, we flushed a Meadowlark, we said, "Now look for the duck's nest." Once, before we had discovered this rule, we put up a Shoveller from two eggs, and marked the spot with a bit of string tied to a neighboring weed. Returning four days later and dropping carefully to my knees before the string-tied cluster, I stretched out my hand to part the thick grasses. From exactly beneath the hand, with a yip of terror, flew a Meadowlark from six eggs. Talk of the continuity of Nature! Here was a manifest exception. Six eggs I had expected, but not Meadowlarks'. What pixie of the meadow had been tricking me? It was not till the day following that I returned with renewed courage to resolve the riddle. The Shoveller's eggs, now cleverly concealed by down, were just twelve inches away from those of the Meadowlark. Evidently, the Duck seeks association with the Lark; this not so much with a view to congenial company, as in order that she may be warned of the approach of danger. Perhaps it is the male Lark whose advice she plans to follow, in view of the fact that her natural protector, the gay drake, will desert as soon as she begins to brood.

Taken near Santa Barbara *Photo by the Author*

A BASHFUL SWAIN

No. 354

Pintail

A. O. U. No. 143. **Dafila acuta tzitzihoa** (Vieillot).

Synonyms.—Sprig. Sprig-tail. Spike-tail.

Description.—*Adult male:* Head and upper-neck hair-brown, darker or warmer brown on top of head, with faint greenish or wine-purple iridescence on sides of occiput; a narrow white stripe from occiput obliquely backward and downward to join white

of breast; enclosed space on hind-neck blackish; fore-neck, breast and belly white, faintly dusky-barred on lower belly; hind-neck, back, sides of breast, and sides finely wavy-barred dusky and white; posterior scapulars and tertiaries lanceolate, heavily striped, broadly with black, more narrowly with buffy white, light brownish gray, and fuscous; rump and behind with mesial brownish dusky and obscure wavy-barring of fuscous and whitish; central pair of tail-feathers much elongated, blackish or with metallic reflections; crissum white, separated from belly by dull white area and broad flank-patches; wing-coverts plain brownish gray, the posterior row tipped with cinnamon-rufous; speculum dull bronzy green or faintly glossy with dusky on either side, and bordered behind by black and terminal white; axillars white with a little mottling of light grayish brown; lining of wings mottled brownish gray and white. Bill black, edged with grayish blue; feet and legs grayish blue; iris brown. *Adult female:* Obscurely colored; pale ochraceous or whitish on belly; ochraceous-buff or brownish buff on remaining underparts; much darker, nearly cinnamon-brown on crown; head and neck finely streaked with dusky, except occasionally on upper throat; breast variously spotted and streaked; sides with large irregular U-shaped markings of brownish dusky; upperparts dusky or greenish fuscous, lightly or heavily marked and striped with dull ochraceous or ochraceous-buff; wing much duller than in male, although pattern traceable; wing-coverts fuscous, narrowly white-edged and tipped; the tips of posterior row scarcely broader, white; speculum dusky with faint purplish and greenish gloss; axillars more heavily mottled with grayish brown. *Adult male in breeding plumage:* Similar to adult female, but wing as in ordinary plumage (Ridgw.). *Young male:* Like adult female but more ochraceous below and more uniformly streaked; slightly transverse-barred above, and wing early showing adult characteristics. *Young female:* Similar to adult, but more heavily tinged below, and more heavily streaked and striped above; *speculum light brown* dappled with dusky. Adult male length 660.4-762 (26.00-30.00); wing 269.2 (10.60); tail 158.8-241.3 (6.25-9.50); bill 53.3 (2.10); tarsus 43.2 (1.70). Females average smaller: tail 101.6-127 (4.00-5.00).

Recognition Marks.—Mallard size or less; lengthened tail-feathers of adult male; head hair-brown; fore-neck and below white (adult male). The female and young of this bird present difficulties. Look first for the wedge-shaped tail, and top of head suffused with cinnamon-brown and heavily streaked with blackish; then eliminate other species by careful attention to speculum and wing-coverts.

Nesting.—*Nest:* On the ground, usually in a bunch of tall grass not far from water. *Down:* Deep mouse-gray with white centers. *Eggs:* 6 to 12; pale greenish gray (yellowish glaucous); egg smaller, slenderer, and usually brighter green than that of Mallard. Av. size 54.6 x 38 (2.15 x 1.50); index 70. *Season:* April 15–May; one brood.

Range of *Dafila acuta.*—Northern Hemisphere, south in winter to northern Africa, Ceylon, China, and Panama.

Range of *D. a. tzitzihoa.*—North America. Breeds from the Arctic Coast south to southern California, southern Colorado, northern Iowa and northern Illinois; winters from southern British Columbia, Nevada, southern Missouri, southern Wisconsin, and Delaware, south to Porto Rico and Panama and in Hawaii; in migrations north to Greenland.

Distribution in California.—Abundant migrant throughout the State; common winter resident, especially southerly. Spring migrations last (at Santa Barbara) from February to early May; the return movement sets in strongly (at Santa Barbara) by August 15th. Sparingly resident in summer and breeding at scattered stations, both east and west of the Sierras and south to Los Angeles and Riverside counties.

The Pintail

Authorities.—Gambel (*Dafila caudacuta*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 24 (status in s. Calif.); *H. C. Bryant*, Condor, vol. xvi., 1914, pp. 220, 227 (desc. nest and eggs, etc.).

WHETHER AS the object of admiring glances or covetous, whether as a flying target, a table bird, or, better still, as the subject of Brooks's brush, the lordly Pintail deserves, it seems to me, first place in the consideration of the connoisseur. The Mallard is the contemporary ancestor of the domestic duck, and as such is perhaps entitled to early notice; but the Pintail is the epitome of all that makes ducks interesting. He is as handsome as any (save the Wood Duck, who is a professional beauty), and to the splendor of a tasteful color-pattern he adds both a sinuous gracefulness of movement and a bearing of conscious nobility which no other duck exhibits. Mark him sitting high on the water, reflecting the morning sun from his snowy breast, swaying the mobile neck in sagacious scrutiny, and raising the slender, tapering tail aloft, like an ensign, and you know you are dealing with an avian equal, a bird of quality and resource.

Pintails are wary birds, and when mingling on the water with other species are usually the first to give the alarm. Being of a sociable nature, and also fastidious as to personal appearance, they spend a good deal of time on shore preening their feathers and gabbling amiably, or else nap-

Taken in San Francisco *Photo by the Author.*

LORD AND LADY PINTAIL

ping. Here, by the exercise of proper precautions, they may be stalked; and owing to their habit of bunching closely when taking to wing, a second barrel may be even more destructive than the first. As single winged targets, they are among the most difficult, as their flight is extremely swift, perhaps the most rapid of any of the ducks. Or so the sportsmen tell me. Candidly, I'd as lief shoot peacocks, or trample flower-beds, or do any other of those things which lessen the beauty of the earth without adequate compensation. "Adequate," did I say? Is any compensation adequate for the depopulated ponds, the lessened beauty of the

Taken near Lake Merrit, Oakland

Photo by H. C. Bryant
Use by courtesy Cal. State Fish and Game Commission

THE FIRST TABLE

GRAIN HAS JUST BEEN DISTRIBUTED, BUT THE NEWCOMERS ARE HESITATING

lakes, the diminished volume of wing-music, the lost confidence of the harmless wild things? I—well, I am not hungry, thank you—save for beauty; and as for "sport"—well, now, just what is sport? Is it when all of us have a good time? or just a few of us? Of course, if there were really enough birds to go around, it might be different. It did seem different while it lasted. But now that the ducks are nearly gone, who

Taken on Empire Gun Club Grounds, near Elkhorn, Monterey County *Photo by the Author*

SPRIGS QUITTING POND TEN

really counts upon wild ducks as an adjunct to the bill of fare? If "Sport," as now constituted, does not give over its insensate selfishness, or else turn to and raise its own birds for the slaughter, the generation about to be born will never know the sight of the vanishing River Ducks.

But someone will say: "I have seen *hundreds* of ducks at such and such a place." Yes, but your grandfather saw *hundreds of thousands* of ducks at the same place. We are talking of tendencies and policies now, not of where a bag may possibly be secured today. I repeat, that in spite of bag-limits and federal restrictions and the cessation of market shooting, unless there is an aggressive movement toward *game propagation*, we shall presently have to give over shooting for lack of anything to shoot.

But who wants to shoot, anyhow? Come with me, and we will bag 5000 ducks of a dozen species with our double-barreled binoculars. If you must have trophies, remember that the best photographs of wild ducks have never been taken yet; nor (with humble apologies to the Major) the best pictures painted. The scene is Laguna Blanca (at its best, while thoroughgoing protection was in force); the date—shall we call it December 4th, 1912. A sheet of water containing less than thirty acres is bounded by heavy beds of tule, save where for a stretch of fifty yards a clear bank slopes gently to the water. A macadam road, somewhat elevated above the reeds, runs round the whole, but at a distance sufficient to reassure the birds. The reeds themselves are full of the lesser birds, but on the shimmering surface of the water rest two or

three hundred *Ruddy Ducks* (1), their saucy tails cocked up in the air like a challenge to admiration, and they paddle or spatter about confidently like old residents, as indeed most of them are, for they breed here. Five hundred *Canvas-backs* (2), tired with the night's questing in forbidden areas, ride at anchor mid-lake, their rich russet heads, most of them, tucked under oblivious wings. A dozen *Widgeons* (3), also near the center, flash their bald heads or answer a whistled inquiry of one of their number. *Shovellers* (4) are treading their productive "mills" hard by the confines of the nearer reeds, and so at intervals around the lake. There must be 1500 of them, and they are so absorbed in their task that they care nothing for the census taker. A handsome *Bufflehead* (5) wings light-heartedly from a distant spot and settles with a splash within easy range. Careful scrutiny shows two more, females, in the distance. And now we descry, among the clustered Canvas-backs, a large form, a *White-fronted Goose* (6), no less, riding low and trying to look inconspicuous. He need not be afraid; we have seen two other species of Geese here, and once a wild Swan. *Lesser Scaups* (7), a few, say fifty, mingle also with the Canvas-backs and proclaim their kinship by their "canvas" sides. We have come now to that portion of the lake where a little company of *Ring-necked Ducks* (8), seven of them, are pretty sure to be napping on a little cove. The "bird-sharps" at Berkeley say that they are very scarce, and they have the California records duly numbered,—one, two, three, up to fourteen. But bless us: here they are year after year, as sure as *—protection.* The nearer tules are so high, we cannot see what lurks about their deeply submerged bases; but we can see suggestive forms and catch telltale flashes of color upon the opposite side of the lake, where the ducks are

Taken in Oregon YOUNG PINTAILS *Photo by Bohlman and Finley*

quite at ease. A patch of dull red resolves itself into a double brace of *Cinnamon Teals* (9), incomparable in color, and a rare sight in winter, even in this favored locality. *Green-winged Teals* (10), the tiniest of their tribe, haunt another little cove and recall memories of northern meadows, sweet with new-mown hay, but tragic with maternal solicitude. Here, at least, they are happy. Much searching for Mallards fails; but a few rarer birds, *Gadwalls* (11), ride at anchor in a shadowy cove, gray, obscure, but significant, like a battle-cruiser in her sea-paint. And of course we have left to the last the most striking species of all. Several hundred *Pintails* (12) occupy the preening beach. Some are dozing; others are making their toilets with most becoming diligence; while others still are parading up and down, like distinguished visitors at a pleasure pier. Other hundreds have hauled out upon the broken-down tules, at a point where the water is deepest and the landward maze most impenetrable. A shout, a clapping of the hands, and all is attention. A thousand birds slip silently into the water and push out watchfully from shore, a more than Spanish Armada for splendor, ready at an instant to take the air. It were a pity to frighten them, but who does not love the harmless bedlam of bird-wings, and especially the down-rush of stiff-set duck-wings, intent on shelter—when confidence has been restored!

Taken in Merced County
Photo by the Author

WHOSE BABY?
A CINNAMON TEAL WAS CLAIMING IT, BUT IT LOOKS TO ME MORE LIKE A PINTAIL. YOU GUESS.

It is an imperfect picture, a mere catalogue of ducks, but such have I seen again and again; and I solemnly protest that I would not exchange the sight for the biggest "bag" ever made, nor for all the smoking carcasses which ever graced the tables at Zinkand's or Tait's. *Dum vivimus vivant anates.*

At the mating season the Pintails delight to exhibit their volitorial

Taken in Merced County *Photos by the Author*

AN ANXIOUS MOTHER

THIS FEMALE BY PARADING OSTENTATIOUSLY UP AND DOWN IS COVERING THE RETREAT OF HER QUARTER-GROWN BROOD

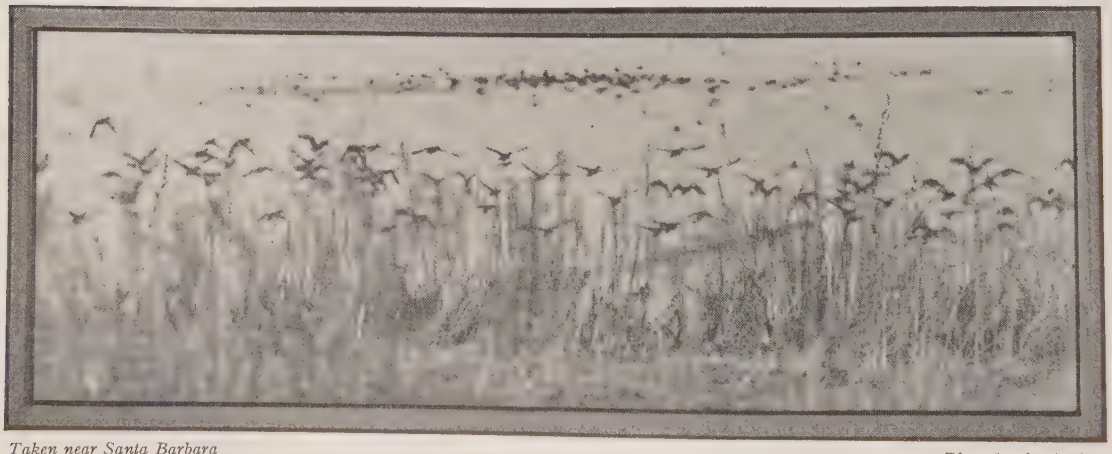
powers. A *bravo* will climb the heavens in sheer exuberance of spirit, and then descend on stiffly outstretched and down-curved wings at a break-neck speed. As he nears the ground, he shifts the angle slightly and shoots over the surface like a meteor, challenging as he passes, with a wing-rush which leaves the beholder almost dazed. The female sometimes participates in these aerial excursions and enjoys the sport as well as her consort. Nelson tells of such a pair which attracted his attention in the lower Yukon country: "Back and forth they passed at a marvelously swift rate of speed, with frequent quick turns and evolutions. At one moment they were almost out of view high overhead, and the next saw them skimming along the ground in an involved course very difficult to follow with the eye. Ere long a second male joined in the chase, then a third, and so on until six males vied with each other in the pursuit. The original pursuer appeared to be the only one capable of keeping close to the coy female, and owing to

Taken in Oregon *Photo by Finley and Bohlman*

PINTAIL DUCK ON NEST

her dextrous turns and curves he was able to draw near only at intervals. Whenever he did succeed, he always passed under the female, and kept so close to her that their wings clattered together with a noise like a watchman's rattle, and audible a long distance. This chase lasted half an hour, and after five of the pursuers had dropped off one by one, the pair remaining (and I think the male was the same that originated the pursuit) settled in one of the ponds."

The Pintail is a regular but not a common breeder in California, being found chiefly in the overflow country in the San Joaquin area, and about some of the lesser lakes of the North. The species is usually the very first to leave for its major breeding area in the high North, and the



Taken near Santa Barbara *Photo by the Author*

ESCAPE

few who remain are a little more forward in their nesting than are the Redheads and Cinnamon Teals. It is for this reason perhaps that Pintail chicks are better known than Pintail eggs in California; and the accounts of juvenile encounters are more numerous than observations on nesting behavior.

As is usually the case with the River Ducks (except *Aix sponsa*), the nest of the Pintail is a lowly hollow scraped out in the grass or herbage, whether near to or remote from water. A sitting female is, naturally,

Taken in Oakland *Photo by H. C. Bryant*
Use by courtesy of the California Fish and Game Commission

WAITING FOR BREAKFAST

DUCKS, CHIEFLY PINTAILS AND WIGEONS, ON LAWNS BORDERING LAKE MERRITT. A CONSPICUOUS EXAMPLE OF RESPONSE TO PROTECTION.

very inconspicuous, and she knows how to remain motionless. So great is the bird's reliance upon protective, or obliterative, coloration, that in one instance, according to Rockwell,[1] a duck whose nest was "a depression in a perfectly bare sandy flat without a particle of concealment of any kind," successfully hatched a clutch of eleven eggs. However, the eggs of a nest which I took from very scanty cover at Los Baños, although the

[1]Condor, Vol. XIII., Nov., 1911, p. 188.

Taken in Santa Barbara *Photo by the Author*

PINTAILS LEAVING THE ESTERO

bird was flushed, turned out to be addled on account of undue exposure to the sun. It is as important, evidently, that the downy coverlet—invariably drawn over the eggs by a careful mother upon leaving—should shield the eggs from a too ardent sun, as that, on colder days, it should retain the exact degree of heat imparted by the sitting bird.

The discovery of a brood of ducklings is no end of fun; for the elemental boy in us will give chase upon the instant. If the brood is young, some of them will freeze on the spot, some of them will dive, and some will make frantic efforts to escape through weeds or reeds. It looks at first as though we could corral the whole bunch, but one minute later we count it lucky if we have a single bird. The mother, meanwhile, has been having successive spasms, in the effort, not always unavailing, to distract our attention. Her legs are useless; both her wings are manifestly broken; and as for meat,—why bother with a mere mouthful, when a whole helpless duck is at hand? If the flock is half-grown, or such a matter, they will escape at a terrific speed, while the resourceful mother arranges more elaborate pantomimics. On a windy day near Los Baños, as we approached a certain pond, a brood of young Pintails set out through a

"choppy sea," under the supervision of an anxious mother. The little fellows made off in splendid form, and were soon lost to view across the stormy water. We could not possibly have captured them, even if we had been mischievously disposed. But the mother was not satisfied, and she spent the ensuing fifteen minutes entertaining us, chiefly by parading back and forth before our eyes, "crossing our bows" repeatedly, at distances ranging from a hundred feet down to thirty or forty. Of course this was nuts to the photographer, especially as it was down sun; and we profited ten plates' worth.

Of the behavior of Pintails under gun-fire, I have no exact information or curiosity. I only know that the "Sprig" is among the wariest of ducks, and also one of the most confiding. The difference between the two extremes is a gun-shot. The portraits on page 1786 are those of perfectly wild birds who enjoy "King's Ex" at Stow Lake. On the protected areas near Santa Barbara the birds do no more than trouble to get out of the

Taken in Santa Barbara
Photo by the Author

"SPRIGS"

way of a wading photographer. Yet in all probability some of these birds travel 150 miles each way to obtain food nightly. Indeed, they may travel much farther than that, for at certain seasons the Pintails quit our ponds at three o'clock in the afternoon, and do not return till nine in the morning. Perhaps they have spent the night in the wheat-fields of the Sacramento Valley, and are willing to pay such a price for a short day's rest.

When protection was withdrawn, temporarily, from Laguna Blanca, I have seen the tired birds rise at the first alarm, and settle in the kelp-beds off the shore of Hope Ranch. Each in a quiet area, where the out-

cropping of kelp was sufficient to prevent drifting, I have seen, on a sunny winter's day, a dozen "rafts" of ducks, chiefly Pintails and Shovellers, hundreds in each, soundly snoozing.

One fact which appears to have escaped the notice of even the astute authors[1] of "The Game Birds of California," is the early and abundant autumnal return of the male Pintails while still in the eclipse plumage. Probably the Santa Barbara coast is unusually favored in this respect, because annually, in the month of August, before other reported localities are talking, or even thinking of ducks, we are visited by hundreds, sometimes thousands, of returning migrants, invariably males. Gadwalls are among them, and on the 25th of August, 1915, I encountered upon the Estero ponds, within the city limits, a close-set flock of twenty-five Blue-winged Teals. But Pintails outnumber all other ducks (save resident Ruddies) a hundred to one at this season. Thus, on the 21st day of August, 1912, I estimated the number of Pintails on the Estero alone at over a thousand. During August, 1922, the Beale Estero, or "Bird Reserve" (upon the eastern edge of Santa Barbara), was fairly crowded with migrating Pintails, probably tens of thousands of them appearing and passing in the course of a month. Because of the "eclipse" character of the plumage—the regulation pattern of the "Lordly Pintail" is only faintly outlined, all but invisible, at this time of the year—everybody (including the sportsman) was asking, "What are they?"

No. 355

Wood Duck

A. O. U. No. 144. **Aix sponsa** (Linnæus).

Synonyms.—Summer Duck. "The Bride."

Description.—*Adult male:* Of almost indescribable elegance; head, crested, metallic and iridescent, green, purple, violet, and black; a white line from angle of upper mandible along crown, and another backward from behind eye, both continued in the feathers of the large occipital crest; throat white, sending up two transverse bars on either side on cheek and hind-neck, fore-neck and breast rich chestnut, glossed with purplish on sides of breast, and marked centrally with triangular white spots, which increase in size backward; belly broadly white; sides warm fulvous, minutely waved with black, the tips of the outermost feathers with broad crescentic bars of black and white; chestnut of breast and fulvous of sides separated by two transverse bars, the front one white, the hinder black; upperparts chiefly sooty or velvety black with metallic reflections of blue, purple, green, and bronze; the anterior and marginal coverts and base of primaries (all mostly concealed) plain fuscous; exposed tips of

[1]Messrs. Grinnell, Bryant and Storer. The work itself is a compendium of information of marvelous accuracy, interest, and completeness.

primaries silvery white, on outer web tipped with metallic blue; secondaries white-tipped, the exposed webs metallic; crissum sooty-brown with metallic gloss; flank-patches intense purplish chestnut; axillars and lining of wings white, spotted or barred with dusky. "Bill (in life) beautifully varied with jet-black, milk-white, lilac, red, orange, and yellow; legs and feet orange, claws black; iris and edges of eye-lid red." *Adult female and young:* Crest only faintly indicated; top of head purplish brown with faint metallic reflections; throat and space about eye (extending backward to occiput) and some feathering about base of bill, white; rest of head ashy brown; upperparts much as in male but duller, chiefly warm brown in place of black; fore-neck and breast brown, streaked with lighter or dull ochraceous; belly white; crissum mixed fuscous and white. Length, adult male: 482.6-520.7 (19.00-20.50); wing 232.4 (9.15); tail 98.6 (3.88); bill 33 (1.30); tarsus 34.5 (1.36). Female, length: 431.8-489 (17.00-19.25); other dimensions in proportion.

Recognition Marks.—Smaller than Mallard; exquisitely variegated plumage of male unmistakable; female unlike that of any other species.

Nesting.— *Nest:* In a hollow tree, lined with twigs, grasses, and down. *Down:* Yellowish gray. *Eggs:* 8 to 14; dull yellowish or pale olive-gray. Av. size 52.1 x 40 (2.05 x 1.58). *Season:* April 20–May; one brood.

General Range.—Temperate North America. Breeds from the southern tier of Canadian provinces south to California, Texas, Florida, and Cuba. Resident on the Pacific Coast; and wintering chiefly in the southern half of its eastern range. Casual in Bermuda, Jamaica, Mexico, and Europe.

Distribution in California.—Rare resident locally throughout the State, but chiefly northerly and in the Sacramento-San Joaquin Valley. Numbers slightly augmented by fall migratory movement. Formerly abundant but now verging upon extinction.

Authorities.—Newberry, Rep. Pac. R. R. Surv., vol. vi., 1857, p. 102 (Calif.); *Willett,* Pac. Coast Avifauna, no. 7, 1912, p. 24 (status in s. Calif.); *Grinnell and Bryant,* Calif. Fish and Game, vol. i., 1915, p. 49 (status in Calif.).

BEYOND controversy, the Wood Duck of America is one of the most exquisitely beautiful of living creatures. Among the Ducks themselves only one species, the Mandarin (*Aix galericulata*), of China, approaches it in elegance; and this is not so strange, since the Mandarin is a kinsman, or, in scientific parlance, a "congener," of our bird. Linnæus called the Wood Duck "the Bride" (Latin, *sponsa*, bride); but of course it is the bride*groom* who wears the jewels, and inherits the products of Oriental looms and dye-stuffs, bequeathed through a thousand generations, for *males must strut and females must work,* is the rule among ducks as among most other groups of birds. Literally *all* the colors of the rainbow belong to this bird in his nuptial plumage—with black and white thrown in for good measure. The Wood Duck is our one vision of tropical splendor, a thing too beautiful and, as the event has proved, too confiding to entrust to our vandal generation.

The Wood Duck is notable not alone for the gaudiness of its attire. In action it is graceful and agile and pleasing. Birds of this species

frequent, or used to frequent, secluded swamps, lagoons, and shaded waterways. They are swift and graceful fliers, and they are able to traverse the mazes of the forest with the ease of pigeons. They perch readily upon the branches of trees, and even walk along them without hesitancy. To the aquatic fare offered by the surface and depths of woodland pools, is added the flying insects of the forest home, and the tender shoots and leaves of plants in spring. Acorns are a favorite food in fall, and upon these the birds sometimes stuff themselves to repletion. They evince an interest in fallen rice also; and if the stock could be nursed back to normality, they would doubtless do their part in protecting the rice grower against the "volunteer" crop which he so much dreads.

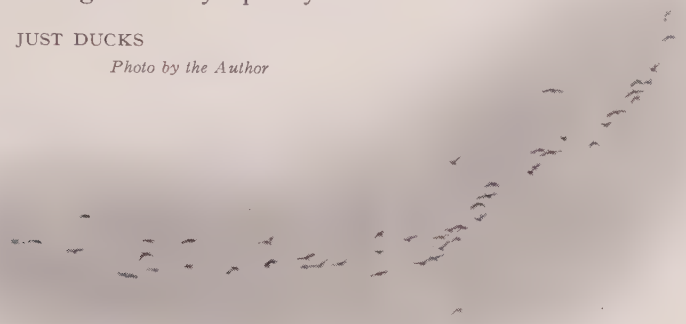
Most curious are the Wood Duck's nesting habits, with which our fathers, in some of the older settled portions of the State, were as familiar as we are with those of the Towhee. The birds were nearly resident, but there was a little shifting of position in the springtime. Winter ranges, selected with a view to forage, were exchanged for others more sheltered, or where neglected timber offered appropriate building sites. A site was chosen in the hollow of a broken branch of a tree—an oak, a willow, or a sycamore—in a deserted woodpecker hole enlarged by weathering, or in the central hollow of some tree to which admission must be gained through a crevice. Those holes which overlooked water were much preferred, but in the absence of such, the Bride and Groom would sometimes take up residence half a mile from the nearest swamp or stream. Within the chosen hollow from eight to seventeen eggs, "resembling old polished ivory," were placed on a cushion of grasses, leaves, feathers, and down. Occasionally the entrance to a nesting hole was so narrow that the female in visiting her eggs was obliged to spend some time in squeezing through, and instances not a few are on record where the shell of the egg of the straining bird was cracked before deposition. In an instance reported by Mr. Roswell S. Wheeler, in Sacramento County, the bird burrowed into a hay-mow, to which access had been gained by a fortunate hole in the side of the barn, and there, through the kindly vigilance of the farmer, she successfully brought off her brood.

The female sits for four weeks, during which time the drake is likely to make himself scarce, or at least not manifest, in that vicinity. It is said, however, that the male mounts a wary guard in some neighboring tree and apprizes his mate of approaching danger by a strange cry, "*oe-eek*," like the crowing of a young cock. No attempt is made by the male to supply the sitting bird with food; but if the locality is one not particularly exposed to danger, he will join her in the hour or so of forage-vacation which she allows herself in the course of the day.

When the young are hatched, they instinctively scramble to the

mouth of the hole and tumble out, or are urged out by the mother, falling either into the receptive water, or upon the carpet of leaves at the foot of the nesting tree. If the distance is too great, the mother will carry the youngsters to the ground in her bill, one at a time, until all are out, and then lead them to the nearest water. There is no question but that both these methods are in vogue, so the early recorded discussions of "carry" *vs* "tumble" are only faintly amusing.

The Wood Duck, once abundant practically throughout the United States, no longer exists in a hundredth part of its former numbers, and in the East not in a thousandth part. Unceasing exposure to gun-fire has brought its ruin. And for what? Simply that the pot might be kept boiling, that the great American belly might be filled. One has a certain degree of sympathy for



JUST DUCKS

Photo by the Author

the ancient Hawaiians who unwittingly exterminated the "Mamo" (*Drepanis pacifica*), in order that its blood-red feathers might adorn a chieftain's cloak. Savages in all ages have envied the birds their gaudy plumage, and have tricked themselves out, as did our own ladies up to a dozen years ago, in borrowed feathers. If the Wood Duck had perished in the cause of human adornment, some feeble word might have been said in justification. But no! it fell before the all-devouring swinishness of the human maw. Because its flesh was sapid, its bridal array was stripped from it and flung on the dump, while its quivering ounce of meat went into the pot. The lord of creation has dined—but where is the Wood Duck?

Reports are unanimous that the Wood Duck, once abundant, or at least "common," in California, was upon the verge of extinction by 1913. Whether or not the "absolute" protection extended at that time by Federal enactment will suffice to bring the species back, remains to

be seen. It is certain that the establishment of breeding farms and private preserves would go far to restore this very desirable bird. The Wood Duck does well in semi-captivity; and where happy surroundings can be assured, the breeding of Wood Ducks for parks and gardens is highly commendable.

No. 356

Redhead

A. O. U. No. 146. **Marila americana** (Eyton).

Synonym.—American Pochard.

Description.—*Adult male:* Angle between culmen and forehead abrupt; head and upper-neck bright chestnut, glossed with reddish purple, most heavily on neck; lower-neck and breast all around (i. e. including upper back) deep glossy brownish black; belly white; rump, upper tail-coverts, and crissum sooty black; remaining plumage, except wings, and including lower belly (in fact all above the "water line") finely wavy-barred or vermiculated dusky and white in about equal proportions; wing-coverts ashy gray speckled with white; speculum still lighter,—warm ashy gray, tipped with white; axillars entirely and lining of wings chiefly white. Bill dull blue with a black belt at tip; feet grayish blue, with black claws and dusky webs; iris orange. *Adult female:* Much plainer; wing as in male; above and on breast and sides warm or dull grayish brown, more or less tipped with buffy or fulvous, the feathers of back and scapulars sometimes speckled with dusky and white on tips, according to season; darker on back and crown, lighter on sides of head and neck, especially above bill, lightening to buffy white on chin and throat; belly white; lower belly light grayish brown; crissum grayish brown and white. Bill lighter than in male. *Immature male:* Like adult female but darker; feathers near base of bill, on sides only, whitish; speculum (always?) creamy white instead of ashy gray. Length 457.2-558.8 (18.00-22.00); wing 227.6 (8.96); tail 63.5 (2.50); bill 45.7 (1.80); tarsus 39.6 (1.56).

Recognition Marks.—Mallard size or smaller; chestnut head, black breast, and "canvas" back and sides of male. See distinctions under next species.

Nesting.—*Nest:* A sturdy basket of woven rushes, a foot or more in diameter and 8 inches to a foot in depth, placed in dense, grassy cover of marsh, or lashed to reeds over water. *Down:* Dull white. *Eggs:* 10 to 22 (greater numbers represent the product of two birds); oval to elliptical; dull yellowish buff to dull yellowish glaucous (hence not always distinguishable from those of *Anas boschas*). Av. size 62.2 x 43.7 (2.45 x 1.72); index 70. *Season:* April 20–June 10; one brood.

General Range.—North America. Breeds in the West from the southern Canadian provinces south to southern California, Utah, and the southern portions of South Dakota, Minnesota, and Wisconsin. Winters from British Columbia, Utah, Kansas, and from Illinois east to Delaware, south to Florida, central Mexico, and southern Lower California. Common on the Atlantic Coast during migrations. Casual (?) in Alaska.

Distribution in California.—Fairly common summer resident in suitable localities throughout the State; more abundant during migrations; scarce or locally wanting in winter. Found on both fresh and salt water.

Authorities.—Woodhouse (*Nyroca ferina*), Rep. Sitgreaves Exped. Col. R., 1853, p. 104 (Calif.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 24 (s. Calif.; nesting dates); *H. C. Bryant*, Condor, vol. xvi., 1914, pp. 228, 229, 231 (desc. nest and eggs, etc.).

THE MEMBERS of the genus *Marila* may be characterized as over-trustful fowl; for of these the Canvasback alone has acquired wisdom (and he at bitter cost), while the Redhead has very nearly achieved extinction. From what we know of physical conditions, and from what we gather of earlier accounts, we conclude that the Redhead was once fairly abundant as a breeding bird of California. Although it is still faithful to its old breeding haunts, the discovery of a nest is rated as an achievement. The bird's confiding disposition, meriting at times the name "fool duck," together with the undoubted savor of its flesh, has invited an incessant persecution, which must have resulted by now in a ninety or ninety-five per cent reduction in numbers. Add to these factors the close resemblance which the Redhead bears to the distinguished, if over-rated, Canvasback, and the only wonder is that any survive.

Redheads arrive from the North in mid-autumn, and those which attempt to winter in the Sacramento Valley, or about San Francisco Bay, hail, presumably, from the "Upper Sonoran" interior of Oregon, Washington, and British Columbia. The California breeders at the same time probably retreat to Lower California and Mexico. At any rate, the species is nearly unrepresented in winter on the interior lakes of southern California; and those which formerly wintered in the coastal lagoons of Los Angeles County may have been, like those of the Sacramento and Tulare country, Canadian-bred birds.

Ecologically speaking, the Redhead forms a sort of connecting link between "River" and "Sea" Ducks. In nesting it does not deploy over the landscape, after the democratic fashion of Pintails and Mallards, but it keeps to deep water, or at least to such reaches of cat-tails and sedges as are well watered at the base. Like the Ruddy, it is a bird of the channels and the deeper shallows, instead of the mud-flats and meadows. On the other hand, it does not, like Scaups or even Canvasbacks, resort to the kelp-beds or the open ocean in winter; but it keeps rather to the larger bodies of fresh water or, at most, frequents only the brackish lagoons of coastal districts.

Most of the Redhead's food is obtained by diving; and it consists not alone of minnows, frogs, newts, and the smaller mollusks, but more largely of the leaves or roots of various aquatic plants. It is generally a "clean feeder"; and when it is able to add wild celery to its bill of fare, its flesh is rated very high upon the market.

The Redhead's affinity for deep water is best illustrated by its nest-

ing habits. Its nest is an "ark of bulrushes"; and although the sides of the nest are bound tightly to the stems of surrounding plants, its bottom is usually supported by a semi-buoyant mass of accumulated vegetation. By reason of its watery surroundings, the bird is able to steal to and from its nest unobserved, that is, by the under-water route, and it is pretty sure to avail itself of this method for escape, when sufficient

Taken in Merced County *Photo by the Author*

NEST AND EGGS OF REDHEAD

warning of approach has been given. Whether Redhead's deep basket be woven of dried tule-stems, cat-tails, or grasses, its structure is not deemed complete until a blanket of down has been provided. This, needless to say, the bird plucks from her own breast when the egg-complement is laid. The down is of a pale grayish white, and thus blends with its surroundings of weathered tules much more accurately than would the sooty gray of a River Duck.

It is not alone because of her skill as an architect, nor yet because of her easy-going disposition, that the Redhead is imposed upon by her shrewder neighbors. She is such a very motherly creature that she thinks nothing of raising a dozen or fifteen, or even nineteen chicks, in her own

right. What wonder, then, if designing females, enamored of the gambols of high duck society, and dreading the maternal exile, impose upon this good dame in the matter of additional charges. A Redhead's nest is the foundling asylum of the marshes. In it are found Ruddies' eggs, Mallards', or Teals'. When the two species are associated, the wily Canvasback frequently puts one over on her less astute neighbors. A. M. Shields is reported to have taken a nest containing twelve eggs of the Redhead and three of the Fulvous Tree Duck. Messrs. Willett and Jay found a nest at San Jacinto Lake which held twenty-seven eggs, of which ten were surmised to belong to another bird, possibly a Pintail.

At Los Baños I once found a Redhead's nest whose owner was not quite so accommodating. Before her ladyship was ready to lay, a saucy Cinnamon Teal had deposited eight of her own burdens. At least, when I found it, May 22nd, 1912, the nest contained two of the Teal and one of the Redhead. Two days later, when I approached noisily through the rushes, I found the nest hastily covered with down and leafy trash, much scattering of down about, and water splashed on the skirts of the nest. The nest, when uncovered, contained five eggs of the Teal and two of the Redhead. After voicing my disgust in appropriate non-professional language, I spied a Teal's egg under water below the nest. This gave me the clew, and by dint of exploring with careful toes, I located the other two missing Teal's eggs, one of them well buried in six inches of soft mud below two feet of water. Whose was the exact moral responsibility for this divided house, we shall never know, for "science" claimed the right of suppressing all further incongruities.

No. 357

Canvas-back

A. O. U. No. 147. **Marila valisineria** (Wilson).

Description.—*Adult male:* Similar to preceding species, but larger, head larger, bill longer, and no evident angle between bill and forehead; head and upper neck reddish brown without purplish gloss, blackening on crown and chin; the sides less heavily waved with dusky; the white bars of upperparts much wider than the dusky (hence entire back conspicuously lighter in tone). Upper mandible dusky at base, bluish only between nostril and black tip; iris red. *Adult female:* Similar to that of preceding species, but proportioned like male; bill correspondingly different; feathers of back and scapulars more or less wavy-barred with white. (The female Red-head is sparingly speckled above with dusky and whitish, but never barred.) Length 508-596.9 (20.00-23.50); wing 228.6 (9.00); tail 73.7 (2.90); bill 59.7 (2.35); tarsus 44.5 (1.75).

The Canvas-back

Recognition Marks.—Mallard size; slope of culmen continuous with forehead; reddish brown head and light canvas back. For detailed comparison with *M. americana* see above.

Nesting.—Not known to breed in California. *Nest:* A bulky basket of twisted reeds, with walls 3 or 4 inches in diameter; built up above water in clump of reeds affording ready access to open water. *Down:* Gray. *Eggs:* 6-10; light greenish gray (yellowish glaucous), but also "rich grayish olive or greenish drab of a darker shade than that usually seen in the eggs of the other species" (Bent). Av. size 63 x 44.45 (2.48 x 1.75). *Season:* May 20–June; one brood.

General Range.—North America. Breeds westerly from southwestern Keewatin, central Mackenzie, Fort Yukon, and central British Columbia, to southern Minnesota, Nebraska, northern Nevada, and northern California. Winters chiefly coastwise from British Columbia and Maryland south to western Mexico and the Gulf States; but also interiorly along the edge of the "ice line" to Colorado, Pennsylvania, etc. Casual in the West Indies, Bermuda, and Guatemala; in migrations north to New Brunswick.

Distribution in California.—Common winter resident, but chiefly coastwise and on larger bodies of water. Abundant in certain favored bays and saline sloughs, and of common occurrence offshore. No definite record of nests found, but birds seen June 20, 1912, on Goose Lake were undoubtedly breeding.

Authorities.—**Woodhouse** (*Nyroca valisneria*), Rep. Sitgreaves Exped. Col. R., 1853, p. 104 (Santa Isabella, Calif.); *Coues*, Birds of the Northwest, 1874, p. 575 (distinction between canvasback and red-head); *Howell and van Rossem*, Condor, vol. xvii., 1915, p. 232 (Colo. R., winter).

IF THE CANVASBACK were gifted with race consciousness, so that it might be aware of the fortunes and misfortunes of its fellows, doubtless the race ere this would have passed emphatic resolutions against the use of wild celery (*Vallisneria spiralis*), that seductive weed of Maryland whose flavory tissues have built up the flesh and the reputation of the American Canvasback. But for that fatal "celery," our good friend might have remained multitudinously obscure, its flesh neither better nor worse than that of other ducks, its name plain Jones, instead of Antinoüs Coronatus, the ranking officer—and victim—of epicuredom. "A plague upon that celery tradition anyhow!" cry at once the spectral birds and all true bird-lovers. There is no wild celery in California, nor anywhere in the West. The western Canvasback's flesh does not reek with this ambrosial herb; yet because some inspired gastronomist in Baltimore passed the word years ago, the Canvasback leads the circus in San Francisco (or did till market hunting was stopped), and so heads the procession to an early grave.

We acknowledge that we are considerably pessimistic, and we know that we shall be ruled out of court by the eager sportsmen who cite "recent records" of extraordinary bags (said bags having been noted under exceptional circumstances, which could not be duplicated elsewhere on

earth at the precise moment of happening), but we record the solemn conviction that the duck situation in America has reached an *impasse*, from which not even Federal regulation is going to deliver us in time. The ducks simply do not exist in one fortieth part of their former numbers. Yet we go blissfully on licensing a hundred thousand shotguns in a single state

CANVASBACKS

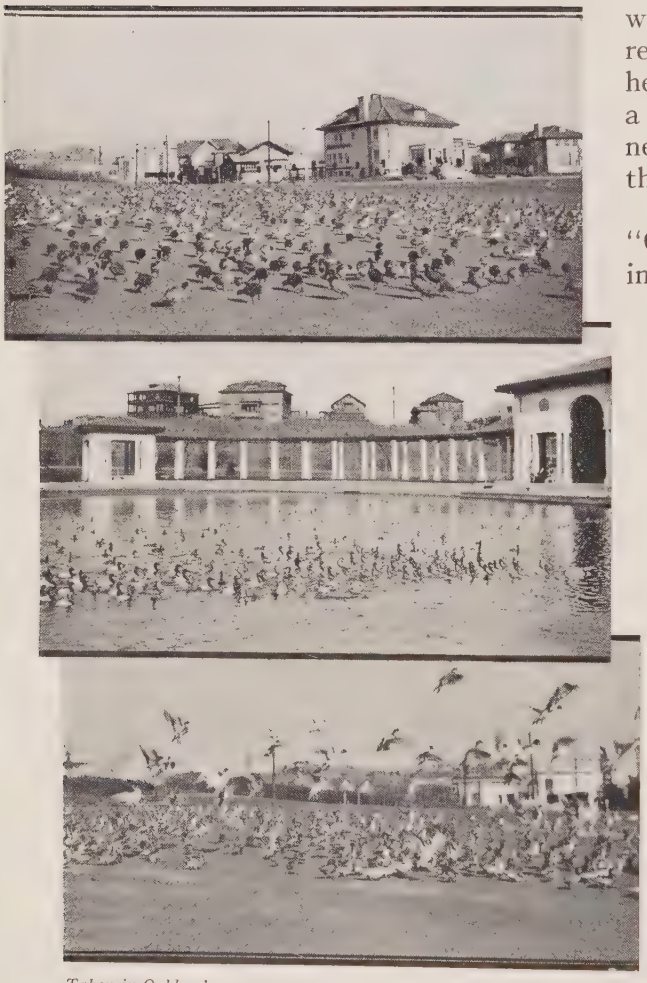
(albeit each cautioned not to shoot *more* than 25 ducks in a day or 50 in a week), with a potential destruction of millions annually, and an actual destruction of everything within reach. The thing simply will not work out on this basis. Not even a merciful Creator will supply wild ducks forever in response to such inordinate, insatiable, unreasoning demand. The end is in sight. Either we shall have to kill off all the ducks and be done with it, or else we shall have to give the wild birds a rest and turn our attention to *raising our own meat.*

Well; this is a sore subject. We will leave the stage—grumbling always, after our own fashion—and give place to the real players, the Canvasbacks—what there are left of them.

1805

The Canvas-back

Viewed under a bright sun, as on a refuge pond, a resting company of care-free Canvasbacks is an inspiring sight. Both by reason of his size and his judicial calm, the Canvasback looks more substantial and more important than his lesser kinsfolk. That high-arched bill, melting into a sloping forehead—it looks somehow more suitable, more efficient, than the sudden angle of Cousin Redhead. The Canvasback is an opulent burgher. His head and neck are covered with conventional black and vandyke brown, and for the rest he is clad in flowing magisterial robes of canvas, save as a black velvet waistcoat points a contrast, and restrains his rotundity. Or, with head under wing, he looks like a man-of-war lying at anchor. No need to keep a lookout. This is the international fleet at rest.



Taken in Oakland *Photos by W. W. Richards*

DUCKS AT LAKE MERRITT

THE CENTRAL PANEL SHOWS A FLOCK OF CANVASBACKS

When the siesta is over (and "Cans" have to sleep o' daytimes in these troubled years), the flock deploys for food. Canvasbacks are deep divers. When in search of snails or clams, they must achieve depths of twenty or twenty-five feet. More commonly, then, search is directed toward aquatic plants, and these they pluck up by the roots, bringing their plunder to the surface for consumption in the case of major hauls. As likely as not, the saucy Widgeon presents himself before the astonished burgher upon his emergence, and snatches away a portion or all of his innocent swag. Well, never mind; there is plenty more at the bottom; and it is quieter down there anyway.

At the approach of danger the Canvasbacks draw together and paddle with leisurely, strong strokes in one

direction. It is then, and especially when breasting the waves of a gale-swept bay, that the birds appear most lordly, most capable, most like a fleet of battleships. These ducks, also, are powerful upon the wing. Some consider them the swiftest of ducks, though I will back a Pintail or a frightened Teal, for a shorter flight. The sound made by their rushing wings is thrilling music, and the noise of a flock, hydroplanes now, settling upon the open water, all brakes set, is an experience not to be forgotten.

Unfortunately, the Canvasback, in spite of his century-long discipline of leaden hail, is a somewhat unsophisticated bird. Fearful enough of mankind, he, nevertheless, yields to the allurement of the first wooden duck which offers, and this in spite of the tell-tale blind hard by. At such times he is easy meat. Or, as one authority artlessly puts it, "By carefully choosing the last one to dive each time, a whole flock can sometimes be brought to bag."

At nesting time, also, this long-suffering soul submits to further impositions. Ruddy Ducks and Mallards impose their offspring upon her care. Even the Redhead, unmindful of her own sufferings in this regard, often lays her eggs in the big basket of her still more indulgent sister. Where both species are common, as in the lake country of Alberta, it is sometimes a pretty problem to determine which is which. It is the rightful owner, usually, who strips the down from her breast; and this, in the case of the Canvasback, is always *gray*.

No. 358

Greater Scaup Duck

A. O. U. No. 148. **Marila marila** (Linnæus).

Synonyms.—Scaup. Greater Scaup. Blue-bill. Shuffler. Raft Duck. Black-head. Flocking Duck.

Description.—*Adult male:* Head and neck black with green gloss; foreneck all around and breast rich purplish black; a collar around neck obscurely lighter; belly and sides pure white; back and scapulars vermiculate or wavy-barred black and white,—the white bars wider in front, becoming much narrower behind; tertiaries, lower back, and tail-coverts sooty black; flanks sooty brown; wing-coverts blackish, speckled sparingly on tips with white; speculum white, tipped with blackish; axillars and under wing-coverts chiefly white. Bill dull blue with black nail, broadening and much hooked at tip; feet dark plumbeous and with darker webs; iris yellow. *Adult female:* Region about base of bill (least on chin) white; head and neck plain snuff-brown; fore-neck and breast dark brown, edged and tipped with lighter; sides and crissum dark grayish brown, the former decidedly, the latter obscurely, vermiculated with white; belly white, shading into brown marginally; upperparts brownish dusky, the tips of feathers speckled or obscurely vermiculated with white; wings, bill, etc., as in male. Length 444.5-508 (17.50-20.00); wing 219.7 (8.65); tail 73.7 (2.90); bill 44.5 (1.75); tarsus 38.1 (1.50).

The Greater Scaup Duck

Recognition Marks.—Smaller than Mallard; head, neck, and breast black (female brown); belly and sides white (male); bill bluish with black nail. Larger.

Nesting.—Does not breed in California. *Nest:* On the ground in a grassy swamp, of grasses, etc., lined with feathers and down. *Eggs:* 6 to 10; pale olive-buff to olive-buff. Av. size 62.5 x 45.5 (2.46 x 1.72). *Season:* June.

General Range.—Breeds from the Aleutian Islands, northwestern Alaska, Great Slave Lake, and central Keewatin, south to northern North Dakota, and southern British Columbia; and, formerly at least, on Magdalen Islands, and on St. Clair Flats (in western Ontario). Winters from Maine to Florida and the Bahamas, and from the Aleutian Islands south to California; in the interior from Colorado and the Great Lakes to Texas.

Distribution in California.—Fairly common winter resident coastwise to Point Conception, less common or rare to San Diego. Occurs also occasionally in the interior, chiefly at San Joaquin-Sacramento Valley points.

Authorities.—**Baird** (*Fulix marila*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 791 (San Diego; San Francisco; Bodega); *Nelson*, Rep. Nat. Hist. Coll. Alaska, 1887, p. 71 (habits; nest and eggs; Alaska); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 25 (status in s. Calif.).

THE RARITY of *marila*, as compared with *affinis*, in southern waters, invites incessant scrutiny of a group which otherwise would be set down as "just ducks." Roughly speaking *marila* decreases in numbers from Puget Sound southward; so, while it is of fairly regular occurrence on the bays and coastal waters of western California, its occurrence anywhere south of Point Conception is deemed worthy of special notice. Indeed, reports of Greater Scaups seen in this section must be taken with a grain of allowance, unless accompanied by explicit mention that Lesser Scaups were at hand for comparison.

Nesting, as they do, in Alaska and the northern interior, we know the Scaups only as late migrants and winter residents, more or less uncomfortable, according to the amount of local gun-fire. They keep rather more to open water than do their lesser kinsmen.

At a northern station, namely, Semiahmoo Spit, upon our international boundary, I have seen the assembling of clans which must later distribute themselves more widely, and dribble out down our western coast. The earlier arrivals come in small flocks of from a dozen to twenty-five individuals, borne upon the wings of a northwest breeze, and as they pass the narrow promontory of sand, the waiting gunners exact toll of those which enter the harbor. Upon the waters of an inner bay, Drayton Harbor, the incoming birds assemble in a great raft, five or ten thousand strong, and, if undisturbed, deploy to dive in shallow water, feeding not only upon the eel-grass itself, but upon the varied forms of life which shelter in its green fastnesses.

It is not uninteresting to watch a small platoon of these somewhat

prosaic fowls at supper. They spend as much time as possible below, and when they are well assured of safety, they excuse themselves one by one, till not a soul remains in sight, not even a lookout. Then one emerges, then another, until the whole company is reassembled to compare notes

Taken in San Francisco *Photo by the Author*

BLUEBILLS AND COOTS

on their luck, or to disappear again in one, two—thirty order, after their lungs are re-charged with air.

About half an hour before sunset, as though by some preconcerted signal, a grand exodus takes place. Flock joins flock as the birds rise steadily against the wind. Mindful of their former experience, the ducks attain a height of two or three times that at which they entered the harbor and, strong in the added confidence of numbers, the serried host, some forty companies abreast, sweeps over the spit in unison—a beautiful and impressive sight. Some five minutes later, a second movement of a similar nature is organized by half as many birds remaining; while a third wave, containing only a hundred or so of laggards, leaves the harbor destitute of Scaups.

Before the advent of the white man, the Indians had methods of their own for obtaining these abundant fowls in wholesale quantities. According to Suckley, long nets were stretched from pole to pole along these narrow sand-spits just before the evening exodus, and the birds, not having been molested upon entering their feeding grounds, fell easy victims

as they endeavored to breast the spit at sunset. Fire hunting was also a favorite method. The ducks, at rest upon the water after nightfall, and dazzled by the glare of a light at the bow of a canoe, allowed themselves to be clubbed or speared by the unseen foe.

Scaups have never been in great demand as market ducks. Even in the heyday of San Francisco restaurant life, they used to sell as low as a dollar a dozen wholesale. In the fall when they are grass-fed and fat, they are not such bad eating, but as the season advances the birds depend more and more upon a diet of shell-fish gleaned from the bottom of the bay, together with a liberal admixture of more or less "rich" mud. As a result, the flavor of a Bluebill in February discourages repetition.

No. 359

Lesser Scaup Duck

A. O. U. No. 149. **Marila affinis** (Eyton).

Synonyms.—Lesser Scaup. Little Blackhead. Bluebill, (etc., sharing names applied to preceding form).

Description.—*Adult male:* Similar to preceding, but smaller; the head not glossed with green,—violet or purplish instead. *Adult female:* Distinguishable from that of *M. marila* only by smaller size. Length 381-431.8 (15.00-17.00); wing 203.2 (8.00); tail 58.4 (2.30); bill 41.9 (1.65); tarsus 35.6 (1.40).

Recognition Marks.—See preceding species; smaller.

Nesting.—Does not breed in California. *Nest:* A slight depression in ground in heavy grass, near water, lined scantily with grass-stems and trash and plentifully with down. *Down:* Brownish dusky with obscure whitish centers. *Eggs:* 6-10; pale greenish olive-buff (dull yellowish glaucous) to light grayish olive. Av. size 56.5 x 39.5 (2.22 x 1.56); index 70. *Season:* June.

General Range.—North America. Breeds from the Yukon Valley and northern Mackenzie south to northern Washington, southern Montana, Colorado, northern Iowa, northern Indiana, and northern Ohio. Winters on the Pacific Coast from British Columbia, interiorly from Colorado and the Great Lakes; and on the Atlantic Coast from New Jersey south to the Lesser Antilles, the Gulf Coast, and Panama.

Distribution in California.—Abundant migrant and winter resident, chiefly coastwise, but also wherever open water offers. Non-breeding stragglers are found in summer; and the species has bred on the reservoirs of San Francisco County.

Authorities.—**Gambel** (*Fuligula mariloides*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *McAtee*, U. S. Dept. Agric., Biol. Surv. Circular no. 81, 1911, pp. 1, 8 (food); *J. Mailliard*, Condor, vol. xvii., 1915, p. 235 (breeding in Golden Gate Park, San Francisco).

POSSIBLY the Creator may love the Lesser Scaup Duck, because He has made a great many of them. At any rate, mediocrity seems to be

the mark of the breed, and their instincts are even more commonplace than their appearance. Any one who has seen them gather in excited mobs to contest with the gulls the flotsam of outfall sewers, as at Santa Barbara or Hyperion, will scarcely inquire why they are absent from the bill of fare at the game dinner. The Lesser Scaup is welcome, for all of us, to muck around in all the brackish ponds and backyard puddles of our coast. Even animated scavengers are more pleasant to the eye than bobbing tin cans or stranded shoes. But as a candidate for table honors, *nevaire.*

Taken on Stow Lake, San Francisco *Photo by the Author*

LESSER SCAUPS
TWO FEMALES, LEFT; TWO MALES, RIGHT

The Lesser Scaups are very much more abundant in the South than their larger kinsmen. They are more largely represented on bodies of fresh water, and, by the same token, a little less given to off-shore duty. They are more venturesome, or more confiding, and they explore all available shallows, while their cousins are likely to be diving in deep waters. At resting time, however, they have the same habit of crowding thickly together upon open water, "rafting," and at such a time they may be thousands strong. If there is a bit of a breeze going, or if they are in dangerous territory, so that there is any likelihood of drifting ashore, the sleeping birds will keep up a leisurely motion with one foot, describing thereby little restful circles upon the water, all with the head tucked under wing, and thoughts in dreamland.

No bird is quicker to avail itself of protection than the Bluebill. Wherever the laws forbid shooting from the wharves or upon the waterways, there Scaups make themselves at home; and in those places where they are not even frightened, as by idle stone-throwers, they become almost as tame as domestic ducks. It goes without saying, then, that Scaups are the most unsuspicious beneficiaries of such protected areas as Eastlake and Westlake Parks in Los Angeles, or Lake Merritt in Oakland. Thousands of these birds take refuge on the last-named body of

water, and their innocent gambols repay a hundredfold the self-denial practiced by Oakland's citizens. On Stow Lake, Golden Gate Park, Scaups crowd up with Mud-hens to snatch tidbits from the proffered hand; and instances are cited where Lesser Scaups, presumably wing-tipped birds, unable to perform the northern migrations, have remained to breed, both on Lake Merced and on Stow Lake. These have brought off chicks a thousand miles south of any other known breeding station, but whether they have succeeded in bringing their young to maturity under such trying circumstances, we do not know.

No. 360

Ring-necked Duck

A. O. U. No. 150. **Marila collaris** (Donovan).

Description.—*Adult male:* Head and neck sooty and lustrous black, with slight greenish and strong violet-purple iridescence; a short dense occipital crest; extreme chin white; a broad chestnut collar not clearly defined; fore-neck, breast, and upperparts, rich, deep, brownish black, glossed with purplish on the breast, with green on the longer scapulars and tertiaries, minutely dotted with white on the scapulars; lower breast and belly white, becoming purplish on crissum and flanks; a transverse bar of white on sides of breast continuous with underparts; sides minutely vermiculated dusky and white (as many as a hundred bars to the inch); wing-coverts grayish brown, becoming dull glossy green on posterior portion; speculum ashy gray tipped with brownish dusky, and bordered interiorly with bluish gray of outer tertials; axillars and lining of wings white. Bill black, narrowly pale bluish at base, and crossed by band of same color near tip; feet dull blue with dusky webs; iris yellow. *Adult female:* Black of male replaced by brown,—dark umber brown on crown and upperparts, warm yellowish brown on breast *and sides*, paling on sides of head and neck to white on throat and whitish about base of bill; belly less clearly or extensively white; wing much as in male. Length 406.4-457.2 (16.00-18.00); av. of six males: wing 191.5 (7.54); tail 57.4 (2.26); bill 47.8 (1.88); tarsus 35.3 (1.39). Females somewhat smaller.

Recognition Marks.—Between Mallard and Teal size; short occipital crest; chestnut collar; white chin; transverse white bar on breast and wavy-barred sides of male serve to distinguish this bird from the other "Blackheads," which it superficially resembles. Peculiar yellowish brown of sides distinctive for female.

Nesting.—*Nest:* On the ground near grassy marshes or in tussock surrounded by water. *Eggs:* 6 to 12; olive-buff. Av. size 58 x 41 (2.28 x 1.61). *Season:* June.

General Range.—North America. Breeds in the Pacific region from British Columbia to northern California; and in the interior from northern Alberta and northern Manitoba to the Dakotas, northern Iowa, and southern Wisconsin. Winters abundantly on the Gulf Coast, and from British Columbia, southern Illinois and New Jersey, south to Porto Rico and Guatemala.

Distribution in California.—Rare winter resident, formerly much more common. Grinnell has listed fifteen records of occurrence, and I have recorded it

nine times at Santa Barbara (Nov. 4 to Jan. 4). Has bred at Eagle Lake, and probably elsewhere in the northeastern plateau region.

Authorities.—Henshaw (*Fuligula collaris*), Rep. Orn. Wheeler Surv., 1877, p. 1321 (Lake Tahoe); *Sheldon*, Condor, vol. ix., 1907, p. 187 (Eagle Lake, breeding); *Hollister*, Auk, vol. xxxvi., 1919, p. 460 (crit.; syst.).

AN AIR OF romantic mystery still haunts the appearance of this bird, which is persistently rated one of the rarities of California duckdom. Western bird-lovers for the most part understand that it is a privilege even to see a bird of this species, however fleetingly; but it is a bit pedantic in the authors of "Game Birds of California" to speak of "more than fifteen different records," when Sheldon found them breeding in numbers on Eagle Lake in Lassen County, and Belding had shot specimens repeatedly and rated it "fairly common" in central California. I saw a small flock, usually of seven individuals, for five successive winters in a certain cove of Laguna Blanca near Santa Barbara; but this refuge was deserted immediately after its unfortunate desecration by gun-fire, Dec. 6, 1914. Only once thereafter, viz., on Dec. 26, 1914, did this species, to my knowledge, put in even a momentary appearance.

The center of the Ring-neck's abundance in the breeding season lies

Taken near Santa Barbara *Photo by the Author*

WHERE THE RING-NECKS USED TO WINTER

between northern Minnesota or Dakota and Athabasca Lake. A secondary breeding range occurs in the Upper Sonoran trough between the Sierro-Cascade and Rocky Mountain System. From the former area the birds retire in winter to the Gulf Coast, where they are rated locally as the most abundant duck. From the intra-mountain area the birds, presumably, retreat to the lakes of Mexico, leaving only a tithe of their very modest numbers to cross the low divides of northeastern California in a normal southerly direction.

The Ring-necked Duck bears a general resemblance to the Lesser Scaup, with which also it occasionally mingles.

Unlike the Scaup, it is never seen in large flocks, seldom in companies of above a dozen or twenty individuals, and single birds are more frequently encountered than in the case of any other species. The bird shuns the open water, so much frequented by Blue-bills, and is seldom or never seen on salt water, not even on the tide-water marshes. In flight the individuals of a flock scatter widely, and they are likely to become still further separated as they feed in the rushes and deeper growth of the swamps and interior lakes. Here they subsist upon crayfish, snails, frogs, insects, and the various sorts of seeds which drop into the water from overhanging vegetation.

When surprised, the Ring-neck rises upon softly whistling wings, and beats a rapid retreat, while you notice the loose occipital feathers, ruffled by fear into a bushy crest, and observe that there is no white on the head, to cause confusion with other crested species.

Of the possible breeding of the bird within the confines of this State, we have only the brief statement[1] of Mr. Harry H. Sheldon, who visited Eagle Lake in late June, 1905: "Many seen in pairs, or old with young; always close to shore and not as shy as other ducks; inhabits the lake margins where many dead trees lie in the water. *Often seen perched on limbs of dead pines above the water.*"

No. 361

American Golden-eye

A. O. U. No. 151. **Glaucionetta clangula americana** (Bonaparte).

Synonyms.—Golden-eye. Whistler. Garrot.

Description.—*Adult male:* Head and upper neck black, with a greenish gloss above and on sides; a circular white spot at base of upper mandible on side, but not reaching upper angle of bill; lower neck all around, underparts, the middle and greater

[1] Condor, Vol. IX., Nov., 1907, p. 189.

wing-coverts, the inner secondaries, and outer scapulars, centrally, pure white; remaining upperparts black, the white scapulars being black-bordered, and the feathers of sides similarly black-bordered along upper margin of the region, and on the lower margin of the elongated posterior feathers; lower belly mottled with dusky. Bill black; feet orange with dusky webs and claws; iris orange-yellow. *Adult female:* Head deep snuff-brown, without white spot; the color not reaching so far down on the neck as black of male; remaining black of male generally replaced by grayish dusky; sides of breast, chest, and sides more or less overlaid, or underlaid, with the same; white of wing interrupted by dusky gray, mostly confined to inner secondaries and adjacent tertiaries. Bill varied with orange. *Young male:* Like adult female, but darker and with increasing indications of loral white spot. Adult male length 457.2-584.2 (18.00-23.00); wing 233.7 (9.20); tail 88.9 (3.50); bill along culmen 34.3 (1.35); bill from frontal angle to tip 48.3 (1.90); depth of upper mandible from frontal angle to tomia 23.4 (.92); from anterior margin of white spot to anterior angle of nostril 24.1 (.95); from anterior angle of nostril to tip of bill 20.3 (.80); tarsus 38.1 (1.50). Female length about 419.1 (16.50); other dimensions proportionately smaller.

Recognition Marks.—Mallard size; black and white coloration; *round* white spot at base of bill on side; bright yellow eyes.

Nesting.—*Nest:* In hollow or decayed tree or stub, lined with grass and down. *Eggs:* 6 to 15; dull greenish gray (between mineral-gray and tea-green). Av. size 59.7 x 43.2 (2.35 x 1.70). *Season:* May 10–June 20; one brood.

Range of *Glaucionetta clangula.*—Northern Hemisphere, breeding in Arctic and sub-Arctic regions; wintering south to Persia, northern India, Japan, and Mexico.

Range of *G. c. americana.*—Breeds from central Alaska, northern Mackenzie, central Keewatin, northern Ungava, and Newfoundland, south to northern tier of states. Winters from the Aleutians, Utah, Nebraska, Minnesota, and the northern tier of eastern states south to Florida, central Mexico, and southern California.

Distribution in California.—Fairly common winter resident, chiefly coastwise. Rare south to Point Conception. Numerous interior "records," but these in themselves indicative of rarity.

Authorities.—Baird (*Bucephala americana*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 796 (Bodega; San Francisco); *Lamb*, Condor, vol. xiv., 1912, p. 34 (Mohave Desert); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 25 (status in s. Calif.).

OF ALL wing-music, from the droning of the Rufous Hummer to the startling whirr of the Ruffed Grouse, I know of none so thrilling sweet as the whistling wing-note of the Golden-eye. A pair of the birds have been frightened from the water, and as they rise in rapid circles to gain a view of some distant goal, they sow the air with vibrant whistling sounds. Owing to a difference in wing-beats between male and female, the brief moment when the wings strike in unison with the effect of a single bird is followed by an ever-changing syncopation, which challenges the waiting ear to tell if it does not hear a dozen birds instead of only two. Again, in the dim twilight of early morning, while the birds are moving from a remote and secure lodging place to feed in some favorite stretch of wild water, one guesses at their early industry from the sound of multitudinous wings above, contending with the cold ether.

1815

The American Golden-eye

The American Golden-eye is of fairly regular but not frequent occurrence in the coastal waters of California as far south as Monterey. From that point southward its appearance is noteworthy, but we have seen it at Santa Barbara, and there are several Los Angeles County records. These birds are lovers of clear water and dashing spray, hence the marshes and "evaporating pans" of our great central valleys have small attraction for them. Our mountain lakes doubtless would claim their attention in winter, if they did not persist in freezing over. And we cannot but speculate upon the reason for their total absence from these lakes in summer, since the birds are very tolerant of cold, and nest under quite similar circumstances in British Columbia or northern Washington.

Golden-eyes associate in small flocks, usually of not more than eight or ten individuals; and because of the prominence of their snowy plumage they find themselves obliged to maintain a wary lookout wherever found. The birds, the males at least, ride high upon the water, yet they dive with extraordinary ease and wrest most of their living from the depths. On salt water the birds venture up on shore as often as they dare, and it is to be feared that they are not fastidious in the matter of their food. Mussels, crabs, and marine worms are commonly eaten, and that bugaboo of northern beaches, the decayed salmon, is also greedily devoured, so that the birds are usually unfit for culinary consideration.

Though not a breeding bird of California, our interest in the Golden-eye's family life will have been aroused by the extraordinary antics of courtship which are incidental to late winter. After the male has bobbed and wheezed and thrown his head backward in violent protestations, a reciprocal passion is confessed, and the pair sets off for some sheltered lakelet of the North where timber abounds. A cavity in a decaying stump or an old woodpecker's hole, necessarily that of the Pileated Woodpecker for so large a tenant, is chosen, and the bottom of the hole, whether near or remote, is filled with eggs. According to Brewster, these are often piled in two layers or set on end, "packed in so closely that it is as difficult to remove the first as to take a book from a tightly filled shelf." But these are cushioned as well as buried in an abundance of light gray down. The down coverlet is drawn closely over as often as the female is obliged to absent herself for food, and no harm comes to the eggs even in the sharp air of northern Alberta.

When the youngsters are hatched they are either allowed to spill out upon the ground, or into the water, if the nest is so fortunately placed; or else they are transported upon the back of the mother bird, clutching tightly at the ruffled feathers of the neck with their tiny bills. Or else—testimony is explicit upon this point—the chicks are picked up and carried by the maternal beak. *Or else*—this sounds fishy, and I

profess my own scepticism—the youngsters are transported upon the parents' feet.

The imagination cannot but follow the adventures of children so romantically cradled and so magically whisked about by fairy flying carpets (whatever the precise method of attachment thereto). If we had to be a duck, we would elect to have golden eyes and to chase mischievous water bugs through limpid icy pools, while nodding little fir trees looked on and applauded. I am sure, too, that *clangula*'s bright-eyed offspring do enjoy their youthful hours. A group of four which we sighted on a lake of northern Washington[1] were no sooner made out than they paddled over in our direction, as curious as we were. When their curiosity was satisfied, the jolly quartette resumed their interrupted sport, which seemed to consist of a spirited game of tag. Now the ducklings splashed and floundered over the surface of the water, and now they took wing, circling the valley half a dozen times in breathless pursuit. After this they returned suddenly to plunge into the water, and so carried on the unending chase in its emerald depths—all as happy as children in grandpa's old barn.

No. 362

Barrow's Golden-eye

A. O. U. No. 152. **Glaucionetta islandica** (Gmelin).

Synonyms.—Whistler. Garrot. Rocky Mountain Garrot.

Description.—*Adult male:* Similar to preceding species, but gloss of head strongly blue-black or purplish; a triangular loral white spot continuous with base of bill on sides and exceeding it above and below; white wing-patch crossed by transverse bar of black; and white of scapulars somewhat less extensive; tip of bill surrounding nail orange. *Adult female:* Presenting only trifling differences from that of the preceding species; bill of slightly different proportions, averaging stubbier and with slightly broader nail; *the tips of the greater coverts blackish.* Size of preceding, but averaging nearer the larger dimensions. Upper mandible from frontal angle to edge of tomia 23.4 (.92); from anterior margin of white spot to anterior angle of nostril 22.4 (.88); from anterior angle of nostril to tip of bill 16.3 (.64)—male. Similar dimensions of female: 19.8 (.78); 19.1 (.75); 17.8 (.70).

Recognition Marks.—Mallard size; black and white coloration; triangular, or open-wing-shaped white spot at base of bill on side; head with *purplish* gloss. Female like preceding,—distinguishable with certainty only by blackish tips of greater coverts.

Nesting.—*Nest:* In "spouts" or other hollows of trees, lined with grass and trash and white down. *Eggs:* 6 to 14; greenish gray (between mineral-gray and tea-green). Av. size 62.7 x 43 (2.47 x 1.71). *Season:* June.

[1] These may very possibly have been young Barrow Golden-eyes (*G. islandica*).

The Barrow Golden-eye

General Range.—Northern North America and Iceland. Breeds from south central Alaska and northwestern Mackenzie, south in the mountains to northern California and Colorado, and from northern Ungava (and occasionally Greenland) south to central Quebec. Winters along the coast from southeastern Alaska to California, and from the Gulf of St. Lawrence to New England; in the interior keeps to the edge of the ice line or well within it. Casual in Europe.

Distribution in California.—Rare winter visitor at the lower levels south at least to San Francisco Bay. Probably an occasional breeder in the high Sierras (the Grand Cirque, extreme northern Fresno County, June 29, 1919).

Authorities.—**Henshaw** (*Bucephala islandica*), Rep. Orn. Wheeler Surv., 1876, p. 274 (San Francisco markets); *Littlejohn*, Condor, vol. xiv., 1912, p. 41 (Redwood City); *Brooks*, Auk, vol. xxxvii., 1920, p. 356, pls. and figs. (criteria for distinguishing *Clangula islandica*).

THE DISTRIBUTION of Barrow's Golden-eye is very singular and is still imperfectly understood. Coinciding in large measure with that of *G. clangula americana*, it nevertheless exhibits such eccentric departures, that we cannot determine from its present outlines where the species originated, or when or how it encountered the rival form. For example, *islandica* breeds commonly in Iceland and, more sparingly, in the Rocky Mountains as far south as southern Colorado, and in the Cascades to central Oregon. Both species press the limit of trees upon the north, and are restrained therein only by their common necessity of hollow trees large enough for nesting purposes. Again, if anything, the Barrow's Golden-eye is a little the hardier of the two, and scarcely deserts its southern breeding range before the oncoming of winter. Its appearance, therefore, in central California is decidedly out of the ordinary, being determined apparently by unusually severe conditions in the northern interior.

Barrow's Golden-eye is one of the wariest of ducks. It shares with loons and grebes all the traditions of being able to dive at the flash of a gun; and the ease with which it can maintain itself in the midst of a comparatively hostile country is a tribute to both its agility and astuteness.

While the bird's rarity in this State precludes our further consideration, it is not at all impossible that *islandica* may yet be recorded as a breeder upon some of our higher lakes. In support of this speculation, in which also the authors[1] of "Game Birds of California" join me, I can only cite the case of a bird observed June 30, 1919, upon one of the tiny ice-bound lakes of the Grand Cirque (alt. 11,000 ft.) in extreme northeastern Fresno County. The bird was a female, or else a male in eclipse plumage (if there is such a thing in this species).

[1] Messrs. Grinnell, Bryant and Storer; see "Game Birds of California," p. 176.

General Range. Northern North America and Iceland. Breeds from south central Alaska and northwestern Mackenzie, south in the mountains to northern California and Colorado, and from northern Ungava (and occasionally Greenland) south to central Quebec. Winters along the coast from southeastern Alaska to California, and from the Gulf of St. Lawrence to New England; in the interior keeps to [illegible] with it. (Cassin & Baird.)

Occurrence in California. Rare winter visitor at the lower levels south at least to [illegible] Bay. Probably an occasional breeder in the high Sierras (the [illegible] near northern Fresno County, June 29, 1919).

Bibliography. Henshaw, *Bucephala islandica*, Rep. Orn. Wheeler Surv., 1876. [illegible] *Bucephala islandica*, Condor, vol. xiv., 1912, p. 41 (Redwood [illegible] 1920, p. 150, pl. and figs. (criteria for distinguishing [illegible]).

Buffalehead

Male and female—male about ¾ life size

THE POSITION OF Barrow's Golden-eye is very singular and [illegible] superficially understood. Coinciding in large measure with that of *O. clangula americana*, it nevertheless exhibits such eccentric departures, that we cannot determine from its present outlines where the species originated, or which or how it overcame and displaced the rival form. For example, *islandica* breeds commonly in Iceland and, more sparingly, in the Rocky Mountains of the south as southern Colorado, and in the Cascades to central Oregon. Both species [illegible] the limit of trees upon the north, and are restrained therein only by the common necessity of hollow trees large enough for nesting purposes. Again, if anything, the Barrow's Golden-eye is a little the hardier of the two, and scarcely deserts its southern breeding range before the beginning of winter. Its appearance, therefore, in central California is decidedly out of the ordinary, being determined apparently by unusually severe conditions in the northern interior.

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[illegible] "Game Birds of California," p. 170.

No. 363

Buffle-head

A. O. U. No. 153. **Charitonetta albeola** (Linnæus).

Synonyms.—Butter-ball. Spirit Duck.

Description.—*Adult male:* Feathers of head puffy, somewhat lengthened along crest and nape; head and upper neck black, sooty below, with brilliant violet, purple, steel-blue, and bronze-green metallic reflections; a broad white space from eye to eye around occiput; back, inner scapulars and tertiaries with touches on coverts and some narrow bordering on the outer scapulars and upturned side-feathers glossy black; upper tail-coverts and tail ashy gray; remaining plumage, including a broad collar around neck, white; belly silky or washed with pale gray. Bill dull bluish with dusky nail and base; feet flesh color, with black claws; iris brown. *Adult female:* Head and neck mouse-brown, darker on crown, lighter on throat; a dull white patch below and behind eye; speculum narrowly white; reminiscences of white coverts of male in shape of two or three central spots on greater coverts; remaining plumage above, grayish dusky, below silky white, shading on sides and hind-neck. Length 355.6-387.4 (14.00-15.25); av. of six males: wing 169.4 (6.67); tail 74.4 (2.93); bill 27.9 (1.10); tarsus 33.3 (1.31). Females smaller.

Recognition Marks.—Teal size; plumage extensively white; head black, with large sharply-defined patch of white from eye to eye behind. Similar spot much reduced, distinctive for female. Expert diver.

Nesting.—*Nest:* In hollow of tree or stump or in tunnel of earth-bank; lined with grasses and down. *Eggs:* 6 to 12; creamy white or ivory-yellow. Av. size 50.8 x 36.8 (2.00 x 1.45). *Season:* c. May 20; one brood.

General Range.—North America. Breeds from the Upper Yukon, northern interior Mackenzie, and central Keewatin, south to northern Washington, northern Montana, and central Ontario. Winters from the Aleutian Islands, Idaho, Colorado, Missouri, southern Michigan, Lake Erie, and New Brunswick, south to northern Lower California, Jalisco, and Florida. Casual in Hawaii, Bermuda, Greenland, and Europe.

Distribution in California.—Winter resident, chiefly coastwise, and diminishing in numbers southerly. In the interior chiefly confined to the lower-lying lakes and reservoirs. Also sparingly resident in summer at least on Eagle Lake.

Authorities.—**Vigors** (*Clangula albeola*), Zool. Voy. "Blossom," 1839, p. 32 (San Francisco); *Brooks*, Auk, vol. xx., 1903, p. 279 (nesting habits; British Columbia); *Dixon*, Condor, vol. xxiii., 1921, p. 165 (Eagle Lake, Lassen Co., breeding).

CONSISTENCY is a jewel which no sportsman possesses. We go forth to slay, but murder is not in our hearts. We kill to eat, but we are not hungry; nor should we ever be in these days of plenty, if our guns were wholly turned to rust. No; shooting is only our crude way of trying to get acquainted with the children of Nature; and we shall outgrow it some day, just as our ancestors outgrew the custom of shooting members of another clan at sight. And we shall outgrow it for precisely the

same reason. We shall learn that the other fellow is more interesting to us alive than dead—so much more interesting that it is really worth our while to make overtures of friendship.

If any sight in nature could disarm the powder-lust, it would be that of a half dozen Buffleheads dancing upon the sun-kissed waters of some southern lagoon. Dapper, jaunty, bright-eyed, elegant, and altogether charming are these dainty duck children. Their white breasts gleam in the sun, and they ride so high in the water that they seem more like fluffs of floating cotton than creatures of avoirdupois. If that captivating drake, now, would only let us handle him, we should be perfectly satisfied. We would cuddle him in our arms, and stroke his puffy cheeks of rainbow hue, or give a playful tweak to his saucy little nose. But he does not fully appreciate our benevolent attitude; he does not immediately reciprocate our desire to fondle him—therefore, we will give him the left barrel.

"The Bufflehead flies with notable speed, vibrating its wings with great rapidity, and usually travels close to the water. When alighting on the water, it does so with a big splash, considering the size of the bird, and ploughs through the water for some little distance before its momentum is completely arrested. It associates in pairs, or flocks of small size. Flocks do not fly in regular formation, as is the habit with some ducks, but the individual members bunch closely together, each disregarding the position of its companion. A deep guttural note is sometimes given when on the wing, but more often the birds fly without uttering any sound whatsoever."—(Game Birds of California).

Buffleheads are found in considerable numbers along our coasts, but there is a noticeable reduction in numbers from Monterey southward. To a lesser extent they are distributed over the inland waters, appearing at times upon the quiet reaches of some of our swiftest streams, or else resting upon some tiny millpond. Brackish pools and tide channels, tide-flats, and the tossing billows of the open ocean, all are alike to these happy and hardy little souls. Like the Scoters or Golden-eyes, the Buffleheads, tired of feeding in the kelp-beds or wresting a living from the combers, occasionally venture ashore, and at no time is a Bufflehead more engaging than when pattering over the sand with quick, agile steps, or when taking a running start down the slope of shingle.

When they reach us in October the Buffleheads are as fat as butter (whence, of course, "Butterball"), but they have gained their flesh on the cleaner feeding grounds of the northern interior. On a fare of fish and marine worms, which they obtain in salt water almost entirely by diving, their flesh soon becomes rank and unprofitable.

Naturally confiding and easily approachable in the fall, the Buffle-head soon acquires powder-experience, and gradually becomes the most difficult of all birds to kill. He will not only give the hunter a wide berth, but he will dive at the flash of a gun. He is clad, moreover, in a magic coat of mail, and his plumage *appears* to shed bullets as readily as it does water. No hunter but feels that the bird is a little uncanny, and he has his little collection of stories to back up his belief. For in-

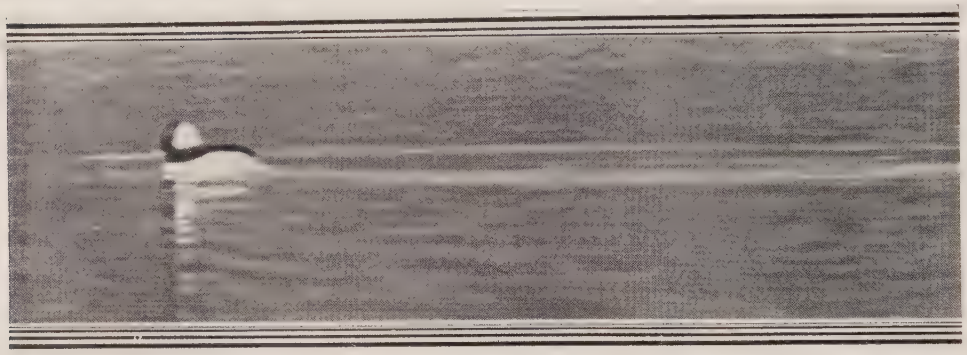
Taken in British Columbia *Photo by Warburton Pike*

BUFFLEHEADS

stance, from the vantage of a river bank and at close range, I once shot a drake Butterball seven times with "4's"—hit around him every time too, but did not learn the flavor of his flesh. Another, cut down in mid-air with 2's, fell limp as any pigeon, but received magic restoration from the water, arose upon the instant, and flew away as though nothing had happened. And then, to cap the climax, if not killed outright at the first shot, the bird will commit suicide by drowning. On tide-flats, with never a ghost of a chance at concealment, we have seen birds dive and remain below, self-entangled in the eel-grass, until death by drowning was certain. This fact is well established, not only in the case of Buffleheads, but in that of many other ducks; and carcasses have been found in the eel-grass at low tide in bays which are much shot over.

A spirited discussion has broken out lately as to whether the Buffle-head is or is not a breeding bird of California. On the 27th day of May, 1921, Messrs. Ray, Labarthe, and Labarthe, Jr., observed a female Buffle-head on Eagle Lake which was leading about eight small young, and was

very distantly attended (or perhaps only sympathized with) by a male Bufflehead. Two of the ducklings became separated from their mother (?) and were later picked up and photographed. These, as pointed out by Major Brooks, prove to have been young of the American Merganser (*Mergus merganser americanus*), also a rare breeder in California. Apparently these waifs were hatched from eggs imposed upon the Bufflehead, and so when it came to a race for liberty they could not catch the pace and manner of their foster brethren. Anyhow, it is fairly clear that Buffleheads have been seen upon one of our larger lakes under suspicious circumstances.[1]



Taken near Santa Barbara *Photo by the Author*

A STUDY IN BLACK-AND-WHITE

No. 364

Old-squaw

A. O. U. No. 154. **Clangula hyemalis** (Linnæus).

Synonyms.—Long-tailed Duck. South-southerly. Old-wife.

Description.—*Adult male in winter:* General plumage rich dark brown, or brownish black, and white; breast, broadly,—continuous with band around upper back—back, centrally,—to end of tail—wings (reddening on secondaries), and patches on sides of neck, brown; sides of head in front, including eyes, warm ashy gray, but eyelids white; superior scapulars elongated, reaching nearly to tip of wing, pale ashy white; sides ashy-tinged; axillars and lining of wings smoky brown; remaining plumage, including crown and throat and neck all around, white; tail graduated, the central pair of feathers much elongated, blackish, the lateral feathers short, white. Bill black, saddled with orange toward tip; feet bluish with dusky webs and claws; iris bright red. *Adult male in breeding season:* Head, neck, fore-breast, and upperparts rich chocolate brown or sooty black; fore-part of head silvery gray, whitening around and behind eye; back varied by rich fulvous or bright reddish on longer scapulars, etc.; lower breast

[1]See Condor, Vol. XXIII., Sept., 1921, p. 165; Ib., Nov., p. 192; Vol. XXIV., Jan., 1922, p. 25 and Mar., p. 68.

and upper belly dark sooty gray; below white shaded with pale gray on sides. *Adult female in winter:* Head and neck white; a dark brown patch on head and nape and another on side of neck; upperparts dusky or blackish, varied, especially on scapulars, with considerable light brown or ochraceous; fore-neck and breast light brown above, shading through gray into white of lower parts; tail sharply pointed, but central feathers not lengthened. Bill and feet dusky green; iris yellow. *Adult female in breeding plumage:* Similar to winter plumage, but head and upper neck dark grayish brown or blackish; a white space about eye and another on the side of the neck; scapulars with still more ochraceous. *Young:* Like adult female in winter, but more uniformly colored above, the males gradually acquiring the ashy scapulars. Adult male length 520.7-584.2 (20.50-23.00); wing 228.6 (9.00); tail 203.2-235 (8.00-9.25); bill 27.9 (1.10); tarsus 33.5 (1.32). Female somewhat smaller,—tail 63.5 (2.50).

Recognition Marks.—Mallard size; white and sooty brown; head white with ashy and dark patches, or brown with grayish patch; tail (of male) greatly elongated; bill short, black and orange; face full.

Nesting.—Does not breed in California. *Nest:* On the ground in tall grass or under bushes near water. *Down:* Dusky with whitish centers. *Eggs:* 5 to 7, 10 of record; dull grayish green, or light olive-gray. Av. size 53 x 37 (2.09 x 1.46); index 70. *Season:* June.

General Range.—Northern Hemisphere, breeding chiefly within the Arctic Circle; south in winter to the Mediterranean, Caspian Sea, Lake Baikal, and northern Japan; and in America wintering from the Aleutians and the Gulf of St. Lawrence regularly to Washington, the Great Lakes and coast of North Carolina, occasionally to California, and rarely to the Gulf States and Florida.

Occurrence in California.—A rare midwinter visitor coastwise. Records from most of our bays and harbors south to San Diego.

Authorities.—Newberry (*Harelda glacialis*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 104 (San Francisco); *Stone*, Proc. Acad. Nat. Sci. Phila., 1900, p. 20 (plumage change); *Stephens*, Condor, vol. xxii., 1920, p. 43 (San Diego).

THOUGH HIS flight is graceful and strong, it is as a musician that the Long-tailed Duck enjoys preëminence. Of course the interpretation of music depends on both the culture and the mood of the listener. Fisherfolk, weary of their incessant racket, have called our birds Scolders, Aunt Huldys, Old-squaws, and other unpleasant things; but we bird-people are apt to bend an indulgent ear toward the efforts of our favorites, and especially in quarters where merit is unexpected and rare. Sundevall, the Swedish (?) naturalist, called the bird the Singing Duck, "because its spring song is both sweet and sonorous." The birds are eminently sociable, and a company of twenty individuals, aroused to utterance at the same time, will raise a chorus which may be heard a mile away. The notes are mellow and resonant, but it may be conceded that they have something of a grumbling quality. *O (nk) h-o (nk) h-leh, o (nk) h-o (nk) h-leh, o (nk) h-o (nk) h-leh* may afford a suggestion of the trumpeting of a single individual; but when all are at it at once, the effect is indescribably enhanced.

1823

OLD-SQUAWS

Says Mr. E. W. Nelson: "During all the spring season until the young begin to hatch the males have a rich musical note, frequently repeated in deep, reed-like tones. Amid the general hoarse chorus of waterfowl which is heard at this season, the notes of the Old-squaw are so harmonious that the fur traders of the upper Yukon have christened him the Organ Duck, a well-merited name. I have frequently stopped and listened with deep pleasure to these harmonious tones, while traversing the broad marshes in the dim twilight at midnight, and while passing a lonely month on the dreary banks of the Yukon delta, I lay in my blankets many hours at night and listened to these rhythmical sounds, which with few exceptions were the only ones to break the silence."

These notes, however, are not at all confined to the spring of the year, for they are used to express uneasiness at the presence of the hunter, as readily as ardor in love. If one has hostile intentions, it is easy to single out a chorus and row toward it, even though the birds are unseen. When seated upon the water these birds exhibit much white, and under certain weather conditions are not easily seen even at close quarters. It is useless to seek them as game, however, for they are expert divers, and as a consequence rank animal feeders.

More frequently than any other species, they are found entangled in fish-nets, whither they have gone in pursuit of finny prey; and upon the Great Lakes, where winter trapping is more common, they are sometimes taken dead in six fathoms of water.

No. 365

Harlequin Duck

A. O. U. No. 155. **Histrionicus histrionicus** (Linnæus).

Synonyms.—Lord and Lady. Painted Duck. Rock Duck. Mountain Duck.

Description.—*Adult male:* Prevailing color plumbeous slate tinged with purplish, darkening on head and neck, blackening on top of head, lower back, rump, and tail, changing on underparts behind breast (including lining of wings) to sooty brown, on flanks to lighter brown; plumage strikingly crossed and slashed with white; a large wing-shaped patch at base of bill produced above as lateral crown-stripe, where yielding to light chestnut posteriorly; a clear-cut rounded spot behind auriculars; lengthened patch on side of neck; a narrow transverse patch at base of neck on side, meeting its fellow, or not, in front and behind; a crescentic patch on side of breast before wing, the last two patches sharply defined by bordering black; a white spot on wing-coverts; a white bar across the ends of the greater coverts and some of the secondaries; scapulars and outer webs of the inner secondaries chiefly white; and, lastly, a small white patch on side of rump; speculum metallic violet or purplish. Bill blackish or horn-blue to olivaceous; irides reddish-brown; feet greenish-dusky with black webs. Perfect plumage is not acquired till the third season. Young males differ chiefly in the purity of the colors, those of the second season having some grayish brown edging on the wings, and flanks finely barred, light brown and fuscous. *Adult female:* General plumage plain dark brown, changing through brownish-gray of upperparts to whitish on belly. Of the white spots of the male only the two anterior ones are represented, and of these the facial patch is much obscured by brownish. Length of male 406.4-444.5 (16.00-17.50); wing 190.5 (7.50); tail 88.9 (3.50); bill 28.5 (1.12); tarsus 33 (1.30). Female a little smaller.

Recognition Marks.—Teal to Crow size; plumbeous coloration with white stripes of male unmistakable; female obscure as to color, but following proportions of male, small bill, high at base, etc.

Nesting.—*Nest:* In vicinity of wild mountain streams, under logs, tree-roots, drift, rocks, etc.; of weeds and grasses, lined with down. *Down:* Hair-brown with paler centers. *Eggs:* 6 to 10; cream-color to deep olive-buff. Av. size 58.4 x 40.6 (2.30 x 1.60). *Season:* April–May; one brood.

General Range.—Northern North America, Iceland, and eastern Asia. Breeds in Iceland and Greenland and along the Arctic Coast of America and Asia, and south to Newfoundland, central Mackenzie, etc.; and in the mountains south to Colorado, central California, Lake Baikal, and possibly the Ural Mountains. Occurs in summer in flocks near the Pribilov and Aleutian Islands and about the islands of the Straits

of Georgia and Washington Sound; less commonly among the Olympiades, and probably along the entire coastline of California. Winters from the Aleutian Islands to the coasts of California and Japan, from the Gulf of St. Lawrence regularly to Maine, rarely to New Jersey, and casually to Florida; and in the interior of the United States along the ice-line.

Distribution in California.—Irregular winter visitor and probable summer loafer (Santa Barbara, Aug. 2, 1914) coastwise; rare south of Monterey. Breeds sparingly in the mountains at least in the Tuolumne section of the central Sierras.

Authorities.—Cassin (*Histrionicus torquatus*), Proc. Acad. Nat. Sci. Phila., vol. xiv., 1862, p. 323 (Calif.); *C. W. Michael and Enid Michael*, Auk, vol. xxxix., 1922, p. 14, pls. (habits in Yosemite Valley); *Grinnell*, Condor, vol. xxiv., 1922, p. 180 (San Luis Obispo Co., southernmost record in Calif.).

THE SCIENTISTS derive great satisfaction from their attempts to tell us why certain things are so and so, and we nod gravely from time to time in pretended comprehension; but there are matters which are better left to folk-lore. We can understand in a measure how the partridge came to look like dead leaves, and the snipe like dead grass, but who may say in terms of cold logic how the Harlequin acquired his fantastic livery? No; it must have been in this wise. The first Harlequin, before he was a Harlequin, that is, was of a nearly uniform slate color, with some relief of dull cinnamon. But, clad in this somber garb, folks mistook him for a coot, which were a misfortune indeed for such a dainty creature. Driven to desperation he sought out Mother Nature and begged to be retouched. This the good dame, being in a whimsical mood, consented to do. She seized a brush from the nearest pot of paint, which happened to be white, and gave her discontented subject, between fits of laughter, sundry daubs and slashes with it, ten to a side, sending him forth at the last a very—Harlequin.

Seriously, it is difficult to detect the *raison d'etre* of this eccentric dress; yet it is barely possible that it does afford its owner an exact protection among the turbulent, foam-flecked waters of its summer home. Certain it is that its bizarre habit has made the bird as frequent a subject for the taxidermist as its rarity has allowed.

Rarity has indeed been the keynote of our apprehension of the Harlequin in the West. Yet it is not at all certain that the Harlequin is so very rare, after all. Nesting, as it does, in the seclusion of the wildest mountain streams, from the central Sierras north to the Arctic coast, it has at least an enormous expanse of suitable nesting cover. So accurate, moreover, is the bird's adaptation to these romantic conditions, that even the zealous student, invading the bird's haunts in quest of information, may catch only a fleeting glimpse of this haunting shape or a flash of its equally fleeting progeny. One who has had such glimpses, and only such glimpses, soon comes to feel that there is more on foot in Harlequindom than he has

knowledge of. A baby Harlequin is as thoroughly at home in wild waters as a baby trout. The trout we may seduce with worm or fly, but until we have devised an equally interesting method for attracting young Harlequins, our meetings are likely to be infrequent.

How abundant these Harlequins must really be—somewhere,—I learned from a summer cruise in the waters of Puget Sound, or more accurately, Washington Sound, between northern Washington and British Columbia. Here, in June, I found the Harlequins, manifestly non-breeding birds, in astonishing numbers. Sometimes to the number of 500 at once we found them playing about the numerous rocks and islets of an extensive archipelago. When surprised on such an occasion, the sound of the bird's rising was like the sound of a storm upon the water. A precisely similar situation, we are told, exists about the islands in northern Alaskan waters,—the Shumagins, the Pribilovs, and the Aleutians; and, in fact, though to a very much lesser degree, down our own coast to Monterey.

Yet these hosts are mere aggregations of summer idlers, non-breeders, immature birds—they do not attain full plumage until their third year, according to Coues—and aged adults. How much greater, therefore, must be the sum of those normal birds which contemporaneously are lost in the fastnesses of our western mountains!

We found the summer crowd care-free and playful. Their feeding seems to be largely confined to the kelp-beds, and is both by tipping and diving. It is fair to surmise, therefore, that they subsist chiefly upon the mollusks and small crustaceans which attach themselves to the floating leaves of this plant. When undisturbed the birds sit jauntily upon the water, with partly ruffled crests and with active tails, noticeable for length; but when the word of caution has been passed around, they lie motionless, with the feathers of the head close down and the tail depressed. They are somewhat given to charging about the rocks on exploratory tours and sallies, but they seldom pass the gunner a second time, and have no reluctance to exchange one feeding ground for another.

In autumn these nesophilic flocks are augmented by the return of the breeding birds, and there is evidence of a slight retreat to more southern latitudes. In winter, also, there is some little show of birds upon interior waters. But, at best, the impression of Harlequin's rarity can be removed only by a visit to the secluded islets of northern archipelagoes.

That the Harlequin has nested and still nests in the central Sierras is but another evidence of the exceeding hospitality of this favored region. That its eggs are still unfound in California is a pleasant challenge to the rising generation, and a pledge, by no means solitary, that ornithological interest will not flag in this State of extremest contrasts.

We are chiefly indebted to Mr. Lyman Belding for such information as

we possess. In "Game Birds of California" Belding says: "I have noticed many of these ducks on the principal streams of Calaveras and Stanislaus Counties in summer in each of the past six or seven years, and sent a juvenile to the Smithsonian which I shot here in 1879 or 1880. I find young broods from about 4000 feet upward, the earliest apparently hatched about the first of June or earlier, and have often surprised the mother ducks with their broods when hidden in Saxifrage (*S. peltata*), which grows profusely in parts of the mountain streams, sometimes approaching within a few feet of the brood ere I alarmed it, when all would hurriedly swim from me, vigorously using both feet and wings to propel themselves against or with the rapid currents, not hesitating to tumble over a moderate-sized cataract when anxious to escape from danger, or even, when following the stream, without such impetus."

Mr. Belding further testifies that the Harlequin Ducks have been greatly reduced in numbers within his knowledge. Fishermen, who annually visit these streams in increasing numbers, have wantonly or jealously slaughtered these wonderful birds until their doom seems well nigh fixed. And yet, it is said, trout form no large proportion of the Harlequin's food, if indeed they are indulged in at all. Really now, wouldn't it be better if our piscivorous friends would consent to leave their guns at home? The Harlequins wouldn't hurt them then!

No. 366

King Eider

A. O. U. No. 162. **Somateria spectabilis** (Linnæus).

Description.—*Adult male:* Top of head and occiput broadly glaucous blue; extreme frontal area and region about base of bill on sides black; a Λ-shaped black mark on chin and a dab of black below and behind eye; sides of head broadly light green (glass-green to absinthe-green); remainder of chin and neck all around white, the color continued well down on back, but becoming clouded with gray; breast broadly cream-buff; a patch on wing including lesser and middle coverts, and a patch on side of rump, white; wing-linings whitish; remainder of plumage sooty black. Irides yellow; bill orange-red; feet reddish with dusky webs. "In adult male, in breeding season, the bill develops immense rounded or squarish lateral frontal processes, bulging high out of line with rest of bill; these processes are soft, and, moreover, depend for their prominence upon development of a mass of fatty substance upon which they are supported; they shrink and become depressed in winter, when the general formation of the parts is not very different from that of other Eiders" (*Coues*). *Adult female:* Head pattern of male dimly outlined in brownish and dusky, the top of head clear dark brown (mummy-brown to sepia), the sides of head cinnamon-buff, speckled with dusky; remaining plumage sooty blackish above, lighter below, pale buffy finely barred

or vermiculated with dusky. Length about 558.8 (22.00); wing 279.4 (11.00); tail 101.6 (4.00); bill along culmen only 31.75 (1.25), but along gape 57.15 (2.25).

Nesting.—Does not breed in California. *Nest:* Of down, on rough ground, or among rocks, near the sea. *Eggs:* 4 to 6; dull water-green or greenish olive-gray. Av. size 74.6 x 49.6 (2.94 x 1.95); index 66.3. *Season:* June.

General Range.—Northern part of Northern Hemisphere. Breeds along the Arctic coasts and islands of Siberia, Europe, and North America, and in Greenland. Winters from southern Greenland and the Gulf of St. Lawrence south to Long Island and, rarely, to Georgia; in the interior rarely to the Great Lakes; and on the North Pacific along the Aleutian Islands and casually south to coast of California.

Occurrence in California.—Casual, two records: "Black Point," San Francisco, winter of 1879-80 (Henshaw); the other from Suisun Marshes, winter 1902-3 (Loomis).

Authorities.—Henshaw, Bull. Nutt. Orn. Club, vol. v., 1880, p. 189 (San Francisco).

EIDERS are among the hardiest of ducks in the far North; and they are migratory only to the extent which the ice forces them out of their summer haunts and drives them to the open seas. Their occurrence anywhere south of Alaska is so rare as to be properly called accidental; and the two California records, spaced twenty-two years apart, do not justify our making particular inquiry as to the species.

Our chief interest in the Eider Duck attaches to its use of down in lining its nests. Since it breeds under Arctic conditions, it is necessary that the eggs be not exposed to the cold air during the absence of the parent. Each day, therefore, as an egg is laid, in a grass-lined depression on some moss-grown slope or small knoll well back from the sea-shore, the bird plucks feathers from her breast; and when the set of six is completed and incubation begun, the eggs are quite buried in an abundance of soft, slate-colored down. The Eiders of the Pacific do not colonize as do *S. mollissima*, and others of the North Atlantic waters. The gathering of the down has not, therefore, come to have much commercial importance and may never reach the dimensions of a traffic. The Aleuts and Eskimos are not ignorant of its uses, however, and the exploitation of Alaska by the white man is bringing such resources as these into a regrettable prominence. It is all very well for the natives to subsist, as they have for centuries, upon the eggs of birds, and to clothe themselves with their skins, but the wild life of Alaska cannot long bear up under the strain imposed upon it by an army of gold-seekers.

No. 367

American Scoter

A. O. U. No. 163. **Oidemia nigra americana** Swainson.

Synonyms.—American Black Scoter. Sea Coot. Black Coot.

Description.—*Adult male:* Entire plumage black, glossy and sooty; outline of feathers at base of bill not peculiar; base of culmen (especially during breeding season) swelled or knobbed,—the knob orange, the rest of the bill, including eyes, black. *Adult female and young:* Sooty gray or fuscous whitening on belly, also on throat, sides of head, and neck, where contrasting with dark fuscous of crown and nape; outline of feathers at base of bill substantially as in male, but culmen not gibbous. Length 457.2-558.8 (18.00-22.00); wing 228.6 (9.00); tail 76.2 (3.00); bill (chord of culmen 43.2 (1.70); tarsus 45.7 (1.80).

Recognition Marks.—Mallard size; plumage solid black; female fuscous, lightening below and on sides of neck; loral feathering not peculiar.

Nesting.—Does not breed in California. *Nest:* On the ground in marshes of the northern interior, and on the bluffs of the seacoasts; of grasses or dead leaves, lined with feathers or down. *Eggs:* 6 to 10; pale ivory yellow. Av. size 64.8 x 45.7 (2.55 x 1.80).

Range of *Oidemia nigra.*—Northern part of the Northern Hemisphere. Breeds chiefly in sub-Arctic regions and migrates south in winter to the Baltic, the coasts of western Europe, Japan, and New Jersey.

Range of *O. n. americana.*—Northern North America and northeastern Asia. Breeds in northeastern Siberia and from Kotzebue Sound, Alaska, south to the Aleutians; also in the northeastern section of America south to Newfoundland. Winters on the Asiatic Coast to Japan and from the islands of Bering Sea south diminishingly to southern California; interiorly to the Great Lakes, and casually to Louisiana; on the Atlantic Coast from Newfoundland to Maine, and decreasingly south even to Florida.

Occurrence in California.—Not common winter visitor coastwise. Grinnell, Bryant, and Storer record a dozen instances; and I have seen them five times at Santa Barbara.

Authorities.—**Newberry** (*Oidemia americana*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 104 (San Francisco); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 26 (status in s. Calif.); *Dwight*, Auk, vol. xxxi., 1914, p. 298, pls. (molts and plumages).

"SCAT!" says the housewife, when pussy starts to sharpen her claws on the oleander tree, "S s s s cat!" In some such way may have originated the commoner name of sea-coot—a hiss to start the uneasy fowl in motion—"Ssss you coot. S'coot!" whence, of course, Scooter and Scoter, the bird that scoots. Whatever philologists may think of this derivation, it has at least the virtue of plausibility, and we shall remember that those ungainly black fowls which are forever getting in the way of steamboats, and shuffling off with wheezy complaint, are Scooters. Now and then, if we are watchful, we shall see a little company of black

ducks which show no trace of white either on head or wing. And if the black is black enough to assure us that we are looking at male birds, and especially if we catch a glimpse of orange at the base of the upper mandible, we may know that we are seeing the somewhat rare American Scoter. These birds are very abundant in Alaskan waters, but they do not venture south as often, nor in such numbers, as do the two succeeding species. They are somewhat smaller than the other birds, but there is nothing in habit or behavior to distinguish them during their summer residence from their better known compeers. Like the latter, they have a perverse habit of dallying in our waters through the summer season, but we have no slightest reason to suppose that they nest anywhere south of Alaska.

No. 368

White-winged Scoter

A. O. U. No. 165. **Melanitta fusca dixoni** (Brooks).

Synonyms.—White-winged Coot. Sea Coot. Scooter. American Velvet Scoter. Black Duck. Squaw Duck. Fish Duck. Clam Digger. Sea Duck. Dixon's Scoter.

Description.—*Adult male:* Speculum white; a white spot below and including eye; entire remaining plumage deep brownish black; culmen gibbous at base, but nearly covered by feathers which reach laterally almost to nostrils; loral feathering usually, but not always, extending further forward than frontal feathers. Bill black, varied by orange-red on lateral and terminal portions (but not on knob or edges). Black less intense in winter. *Adult female and immature:* Plain dusky brown, a little lighter below; and with two dull whitish spots on side of head, on lore, and ear-coverts; speculum white; extension of loral feathers as in adult male, but bill only slightly gibbous, and with less orange. Length 482.6-609.6 (19.00-24.00); wing 279.4 11.00); tail 82.6 (3.25); bill along culmen 40.6 (1.60); anterior margin of loral feathering to tip of bill 39.4 (1.55); tarsus 50.8 (2.00).

Recognition Marks.—Mallard size or larger; plumage black or dark brown (female); white wing-patch (speculum) distinctive.

Nesting.—Does not breed in California. *Nest:* On the ground under a bush, often at a considerable distance from water; lined heavily with twigs, dried plants, and moss, with a few feathers and down. *Eggs:* 6 to 10; "pale salmon buff or flesh color" (Bent). Av. size 68.1 x 46.5 (2.68 x 1.83). *Season:* Late June; one brood.

Range of *Melanitta fusca.*—Northern portion of Northern Hemisphere, south in winter to the Black and Caspian seas, China, Lower California, and Florida.

Range of *M. f. dixoni.*—Western North America and eastern Asia. Breeds from northeastern Siberia, northern Alaska, and northern Mackenzie, south to northeastern Washington, Alberta, and northern North Dakota. Winters along the Asiatic Coast to China and Japan; and on the Pacific Coast of America from Unalaska Island to San Quentin Bay, Lower California; casually in the interior perhaps to Louisiana.

The White-winged Scoter

Distribution in California.—Abundant migrant and winter resident along the entire seacoast. The southward movement sets in in October and most of the northbound birds are cleared by May 1st; but a rather considerable population of non-breeding birds tarries throughout the year.

Authorities.—Gambel (*Œdemia fusca*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *Bent*, Auk, vol. xix., 1902, p. 171 (nesting habits, in N. D.); *Cooke*, U. S. Dept. Agric., Bull. no. 185, 1915, p. 21, map (migration route); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 42 (s. Calif. ids.).

THE SCOTERS are the characteristic salt-water ducks of middle temperate latitudes, and in the aggregate they probably outnumber the remaining winter residents of our coastal waters. Their exact distribution is determined in part by the "fertility" of the beaches; in part by the presence of kelp-beds; and especially by the outlines of favoring reefs, mussel beds, and barnacle-covered rocks. Although not averse to the open ocean, the birds frequent the quieter waters of bays and estuaries, which, naturally, yield a more abundant food supply. Thus, Humboldt Bay, San Francisco Bay, Monterey Bay, and the lee-shores of the Santa Barbara Islands are favorite places of resort. Brackish lagoons claim their quota; but bodies of fresh water, even though near shore, are seldom visited. I have, however, seen immature birds on several occasions upon Laguna Blanca, which is fed by mountain springs. In the interior, Scoters are occasionally seen upon the larger bodies of water; and they winter in numbers upon the Great Lakes.

Where the average distance of the resting bird from shore is not determined by a line of breakers, it is likely to be a safe gun-shot. And at that, few birds, save the Gulls, suffer much from the casual "hunter," the miscreant who goes down to the beach just to see what he can kill. For one bird that is retrieved by the listless hunter, six are left to rot, when finally cast up by the tide, or else to drag out a miserable existence to which a swift death were preferable.

The feeding of the Sea Coot is governed largely by the phases of the tide; but it is probable that the night tides are more closely followed than those which occur in daylight. At any rate the birds seem to spend an enormous amount of time just resting, and we presume they must make up for it by a night shift.

The Coots feed chiefly upon mussels, periwinkles, crustaceans, and clams, with a little admixture of algæ, or other vegetable matter. Mussels and clams are devoured shells and all, up to a diameter of two inches or more; and the bird's digestion appears to be in no wise impaired by this heroic diet. Its flesh, as a consequence, is rank, and judged unfit for food, save by the equally heroic Indian. Yet to call the Scoter flesh "fishy" is only to advertise our own ignorance. A straight diet of

fish, it appears, rarely renders the diver unfit for human consumption. Witness the Cormorant, which although an exclusive fish-eater and repulsive enough in appearance, is really a sapid morsel.[1] The flesh of loons, bitterns, and herons, likewise, although not recommended for diet, is certainly not fishy. It is rather the mixed diet of shellfish, marine

Taken off the Coast of Washington *Photo by the Author*

A "RAFT" OF SEA-FOWL, CHIEFLY WHITE-WINGED SCOTERS

worms, and mud which establishes the disagreeable flavor of Scoters, Bluebills, and their ilk. This, in the case of the Scoter, may be reckoned something of a misfortune, for a fat Sea-coot will weigh up to six or seven pounds, thus exceeding the avoirdupois of the much larger Black Brant.

Scoters have considerable difficulty in rising from the water, and, like loons, require a good deal of sea-room. The feet assist the wings for some moments as the birds are getting launched, and the laboring movement of the wings gives rise to a murmuring sound, which is not unpleasant to the ear. Indeed, a teeming bay, a-hum with the music of a thousand flying Scoters, is an orchestra in itself and needs no help of wind or wave to write its score upon the heart. It is of the sea, salty.

[1] Dr. C. W. Townsend, quoted—The Auk, Vol. XXXVI., Jan., 1919, p. 100.

At the time of the bird's maximum fatness, the flight of the Scoter is but little more than an effort to keep out of the water, and it is abandoned with evident relief. During migrations, however, the birds are capable of rapid flight, moving as they do in straggling companies numbering from a dozen to several hundred. Occasionally, the Scoters fall into line, goose-fashion, and one looks twice to see if it be not, indeed, a flock of passing Brant. If obliged to beat against the wind, as upon the Pacific Ocean, the flock flies low, rising over the crest of each billow, and disappearing in every hollow in order to get what shelter it may.

White-winged Scoters, migrating at a considerable height, as say 300 or 400 feet, are subject to a remarkable limitation. Upon hearing any sudden noise, as the banging of oars against the side of a boat or the discharge of a gun, they descend suddenly, as though to take refuge in the water, their only trusted element. Hunters sometimes take advantage of this weakness, and as the birds come tumbling out of the sky to escape imagined thunderbolts, give them real ones.

Taken near Santa Cruz Island *Photo by the Author*

1834

A CAT-NAP

IMMATURE WHITE-WINGED SCOTER

On a northern sand-spit, which is typical of hundreds lying between us and Alaska, the White-winged Scoters are much hunted—not at all for the excellence of their flesh, but because the supply is unfailing and because of their interest as winged targets. The Scoters feed by hundreds during the day in the harbor, but feel impelled to leave its uncertainties toward nightfall and seek the safety of open water. The wiser birds defer flight till well after dark, when law-abiding gunners have gone home. During the passage of the sand-spit the unhappy birds are subjected to a grilling fire, but none think of rising above danger. The path of the first flock determines the point at which others will follow for the remainder of the evening. It is as though the word had been passed around that the passage would be attempted at a certain point that night, and successive platoons obey the general order in spite of persecution. The flight is greatly quickened as the spit is approached, and should a flock of experienced birds discover the gunner ahead of them, they do not tower or swerve, but each in his course begins a frantic wriggling and twisting, achieving thus a sort of cork-screw motion, which is really very effective in upsetting the gunner's calculations. In spite of the grim tragedy of the thing, it is laughable to see the birds perform in this way, like schoolboys before the uplifted lash.

No. 369

Surf Scoter

A. O. U. No. 166. **Melanitta perspicillata** (Linnæus).

Synonyms.—Surf Duck. Sea Coot. Squaw Duck, (etc., as in preceding species).

Description.—*Adult male:* A triangular patch on nape and a rounded patch on forehead between eyes, shining white; remaining plumage glossy black, duller below; frontal extension of feathers reaching nearly to nostril. Bill swollen at base and singularly variegated in hue, pinkish white on sides, upon which a sharply defined squarish patch of black, a line of brilliant carmine between this patch and base of bill, culmen dark red shading into orange; under mandible orange and white; irides white; feet orange-red, blackish on joints and webs. *Adult female:* Plumage sooty brown, changing on underparts through grayish brown to silvery gray; no sign of white patches of male, but two dull whitish areas on side of head, one buccal and one auricular (sometimes indistinct or even wanting). Bill blackish, scarcely swollen at base; frontal feathering not so extended as in male; feet blackish tinged with orange-red. *Immature male:* Like adult female, but patches on side of head more definitely white. Length of adult: 457.2-533.4 (18.00-21.00); wing 228.6-254 (9.00-10.00); bill along gape 57.2-63.5 (2.25-2.50); female averaging the smaller of these dimensions.

Recognition Marks.—Crow size; white patches on forehead and nape of male; whitish patches on sides of head of female and young male distinctive.

1835

The Surf Scoter

Nesting.—Does not breed in California. *Nest:* On ground in dense cover near water; of grasses and feathers with abundant dusky down. *Eggs:* 5 to 8; dull ivory-yellow or cream-colored. Av. size 60.96 x 43.2 (2.40 x 1.70). *Season:* Late June.

General Range.—North America. Breeds on Arctic shores west to northwestern Mackenzie, and south to Great Slave Lake and northern Quebec, and from Kotzebue Sound, Alaska, south to Sitka. Birds occurring in summer off the coast of northeastern Siberia apparently do not breed; and non-breeders are found south on both the Atlantic and Pacific coasts of America in considerable numbers. Winters on the Atlantic Coast from Nova Scotia to North Carolina, rarely to Florida; in the interior regularly to the Great Lakes, and casually in Mississippi Valley south to Louisiana; on the Pacific Coast from the Aleutians south to San Quentin Bay, Lower California.

Distribution in California.—Abundant migrant and winter resident along the entire coastline. A scattered population of non-breeders remains throughout the summer.

Authorities.—Newberry (*Oidemia perspicillata*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 104 (San Francisco); *Dwight*, Auk, vol. xxxi., 1914, p. 302, pls. (molts and plumages); *F. M. Bailey*, Condor, vol. xviii., 1916, p. 109 (habits, s. Calif.).

THE PROW of any one of a thousand coasting steamers, ferries, or river boats affords an ideal opportunity for the study of winter bird-life in Pacific waters. Wanton shooting from such stations has been practically discontinued, so that knowing birds postpone flight till the last moment at the approach of a steamboat. No birds are more frequently encountered than the Scoters, Surf and White-winged; and it is a source of never-ending enjoyment to observe their behavior on such occasions.

At first it is presumed that the boat will pass at a considerable distance. In default of this issue the birds decide to outswim it, and bend low to their task. But the monster approaches. The Coots stop rowing and wag their heads inquiringly from side to side. It certainly is coming. Whatever shall we do? Finally, one bird pulls himself together and begins to pound the water with his wings and feet. The rest follow suit with much grumbling and wheezing, and soon they are really off, pattering and scooting over the water. But Flagstaff's wind gives out (and he is the handsomest of the company). He is too fat to fly, and he gives up after a few strokes, falling back panting into the water. There is always one resort left an honest sea-fowl. You quench your curiosity in his gaudy head-gear, bending low over the railing, and as the steamer is almost upon him, the bird dives, swiftly, surely, confidently, quite out of harm's way, and does not reappear short of a hundred yards.

The head of the male Surf Scoter presents one of the most bizarre appearances in nature. It has only the Tufted Puffin for a rival, and I think that "the odds are even" here. Try to conjure before your mind's eye the colorings of the Scoter's bill alone: black, white, pink, yellow, cad-

mium, orange, and carmine, and those displayed not only in transitions but in the most abrupt contrasts. Add a swelling which involves not only the base of the bill but the whole anterior portion of the head; then a white eye; then two patches of dazzling white on black ground for the rest, and you have this Beau Brummel of the seas.

Taken in Santa Barbara *Photo by the Author*

OLD MAN OF THE SEA

But the ladies like him; they have to, for they are such homely bodies themselves that the perversity of attraction must be mutual. I have seen a Surf Scoter courtship in mid-April. Five males are devoting themselves to one female. They chase each other about viciously, but no harm seems to come of their threats; and they crowd around the female as though to force a decision. She, in turn, chases them off with lowered head and outstretched neck and great show of displeasure. Now and then one flees in pretended fright and with great commotion, only to settle down at a dozen yards and come sidling back. If she will deign a moment's attention, the flattered gallant dips his head and scoots lightly under the surface of the water, showering himself repeatedly with his fluttering wings. One suitor swims about dizzily, half submerged, while another rises from the water repeatedly, apparently to show the fair one how little assistance he requires from his feet in starting, a challenge some of his corpulent rivals dare not accept, I ween. I have watched them thus for half an hour, off and on, and the villains still pursue her.

Not only are the Surf Scoters present in vast numbers in winter throughout the length of our coast, but quite considerable numbers linger through the summer,—that is to say, the year around. These are evidently immature birds, who have no need to go north to watch their more fortunate elders nest, and old birds, whose mating days are done. Such a company I once found in mid-June haunting an off-shore reef near the Forty-eighth Parallel. Though the reef was half a mile away, we could look down on it from the summit of Carroll Islet and note the accurate allowance of spacing for each bird, about three or four feet from his nearest fellows. There were a thousand birds of this and the

Taken in Santa Barbara *Photo by the Author*

SURF SCOTERS, ADULT MALES

preceding species, together with an irregular admixture of Scaups, California Murres, and Tufted Puffins. Day after day this strange phenomenon persisted, though the proportions of the personnel furnished by the local breeding murres and puffins shifted somewhat from hour to hour. It was a weird and suggestive sight, a stranded company of derelicts, a sort of Old Ladies' Home whose only furnishings were an open-air plunge and (usually guaranteed) an absence of spectators.

Apropos of derelicts, we remark again the constant wastage of bird-life occasioned by the seepage of oil along our Santa Barbara coast. Surf Scoters are among the chief sufferers, and the sight of a sick duck, bedraggled with crude oil, tottering down the beach-line, is a commonplace of all the less-frequented stretches. When such a bird is caught (and it is a mercy to catch it and put it out of its misery) it is often found to be in the last stages of emaciation, a mere bundle of feathers. The bird languishes not through lack of food, which is abundant enough, but because in its distracted efforts to rid its plumage of the entangling slime, the bird imbibes the fatal mixture. Purgation and emaciation follow without redress. So because we are used to seeing

sick or oil-soaked birds floundering about the beaches hereabouts, I was slow to arrive at the conclusion that beach-foraging is a normal act for Scoters. The suspicion of illness or weakness in one of these birds, even a perfectly healthy one, seen inside the surf line, is occasioned by the fact that he is invariably too heavy for his feet. These he uses, if at all, with great difficulty, and he waddles or hitches about most awkwardly. Yet this is perfectly natural. Do we not recall our own feeling of excessive weight upon emerging from an ocean dip? We are elephants, and they have given us only toothpicks for support. Certainly the Scoter takes most of his terrestrial experience squatting. In this way alone is he able to combat the powerful reflex of the retreating wave and be prepared to endure the shock of its successor. Five birds that I am watching have been back and forth through the surf repeatedly, almost invariably swimming for it when flight would appear easier. A bird breasts the curling wave and rises with nice calculation, or if he sees that he is too late, he ducks nimbly so as to get the minimum shock. Inside the breaker line he allows the water to sweep him up as far as it will, endeavoring only to keep headed ashore by dint of spraddling his legs. If suspicious of strangers, he allows the refluent wave also to sweep him back. Once fairly ashore, the Scoters dig valiantly in the saturated sands for concealed dainties. One I watched scooped rapidly with his shovel bill, like an Indian after clams, until his labors were rewarded, apparently by a worm. So far as I know these are the only birds capable of submitting to the actual pounding of the breakers, or willing to do so.

Taken in Santa Barbara *Photo by the Author*

SKIRMISHING AT THE TIDE LINE

No. 370

Ruddy Duck

A. O. U. No. 167. **Erismatura jamaicensis** (Gmelin).

Synonyms.—Pin-tail. Quill-tail. Spine-tail. Ruddy Diver. Spoon-billed Butter-ball. Blue-bill. Bull-neck. Spatterer. Spatter Duck. Spat.

Description.—*Adult male in breeding plumage:* Top of head and nape black; cheeks and chin white; neck all around, chest, sides of breast, sides, and upperparts, rich chestnut-red; wings, lower back (but not upper coverts), and tail, blackish; tail, mostly exposed, widely spread, graduated at sides, composed of eighteen to twenty stiffish feathers, which, *except in the breeding season*, have the tips of the shafts more or less exposed; remaining underparts silvery white (overlying dark brownish gray, which is irregularly and sometimes completely exposed, especially on sides, according to the wear of the plumage), lightly washed, especially on breast, with bright rusty. Bill light blue; feet bluish gray with dusky webs; iris brownish red. "*Adult male in winter:* Top and side of head to below eye, and hind-neck, blackish brown, minutely flecked with ashy brown; patch on side of head white, as in summer; whole upper surface of body dark brown, minutely peppered with ashy gray and chestnut; tail and wings and lower surface as in summer; throat and broad collar around neck, ashy brown. In any plumage wings and tail may be pale ashy due to wear and fading" ("Game Birds of Calif.," Grinnell, Bryant, and Storer). *Adult female and immature:* Above, including top of head, dark grayish brown or dusky, finely mottled, or sometimes indistinctly barred, on scapulars, etc., with buffy gray; throat and sides of head and neck, contrasting with crown, whitish, usually crossed longitudinally on sides of head by an indistinct dusky band; underparts as in adult male, but underlying brown more extensively outcropping, and fore-neck, chest and sides heavily tinged with bright rusty or ochraceous. Length 355.6-419.1 (14.00-16.50); wing 144 (5.67); tail 67.3 (2.65); bill 40.6 (1.60); greatest breadth of bill 23.4 (.92); tarsus 34.5 (1.36). Females average a little smaller.

Recognition Marks.—Teal size or slightly larger; chestnut-red coloring of male; dark and light contrasting on sides of head in female and young; "chunky" appearance; tail of stiff, usually pointed, feathers, generally upturned while on water.

Nesting.—*Nest:* A slight platform of tules or other marshy waste, placed under dense cover near edge of pond or stream, or else a bulky mass of reeds built up out of water in shelter of tule clump, and lined with dull whitish down. *Eggs:* 4 to 12, 19 of record; lusterless and granular, dull white or palest yellowish glaucous. Av. size 63.5 x 45.7 (2.50 x 1.80); index 72. *Season:* May–June; one brood.

General Range.—Temperate North America. Breeds from British Columbia, Great Slave Lake, southern Keewatin, and northern Mackenzie, south regularly to northern Lower California, central Arizona, northwestern Nebraska, the southern portions of Minnesota, Michigan, and Ontario, and Maine, and locally elsewhere, as Massachusetts, Cuba, Porto Rico, Guatemala, Valley of Mexico, and Cape San Lucas region. Winters in warmer portions of range from British Columbia, Arizona, southern Illinois, etc., south to the West Indies and Costa Rica.

Distribution in California.—Common resident on fresh-water lakes and tule-bordered ponds throughout the State,—the best distributed of ducks. Numbers considerably augmented in winter, especially southerly.

Authorities.—Gambel (*Erismatura rubida*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 226 (Calif.); *Ingersoll*, Orn. and Oöl., vol. ix., 1884, p. 15 (desc. nest, eggs, habits; Santa Cruz); *Wetmore*, Condor, vol. xx., 1918, p. 19 (anat.; tracheal air-sac).

IT IS REPORTED of a South Sea missionary that, when approached by a band of cannibals brandishing spears of sharks' teeth, instead of fleeing in terror, he ran forward and embraced the chief with such show of friendliness that he completely won the savage heart. In such manner, the Ruddy Duck would conquer the heart of the sportsman; for when approached by the swift-urging punt, instead of flying at fair range and inviting attack, he waits in mild-eyed curiosity until the sportsman's ardor is lost in shame and admiration. His flesh, therefore, has been generously voted "tough" and "stringy"; *and* you must *not* shoot a Ruddy, please!

These birds are chiefly characterized by a certain jauntiness of bearing, quite in keeping with their bewitching chunkiness. They ride the water like corks, and their tails are most frequently cocked up, wren-fashion. These saucy tails are composed of stiff, spiny feathers, having shafts denuded toward the tips, more or less, according to season, so that the birds are popularly known as Pintails, Sprig-tails, Quill-tails, Spine-tails, etc., in confusion with *Dafila acuta tzitzihoa*, which owes its common name not to the stiffness but to the graceful length of its caudal appendage.

Another nickname applied to the birds by California sportsmen is "Spat," or "Spatterer." This is said to have been applied because of the noisy strokes made by the duck's feet upon the surface of the water as it is getting under way; but, somehow, I fancy that it is rather the combination of dandified gentility and squattiness which makes the name "Spat" stick.

Besides being always underlaid with a coat of fat, when in good condition, the garments of these birds are made extra thick, so that they may spend a great deal of time under water. Although not quite so agile as the Bufflehead at the moment of diving, they are excelled by no other duck in their powers of endurance under water, diving rather than flying when harassed, and emerging at great distances. Indeed, the Ruddy has the Grebe-habit of swimming, under persecution, with only the nostrils or head exposed.

A drake which I once quietly followed about, in a canoe upon a northern lake in nesting time, seemed rather to enjoy the game, although he was more sophisticated than some. The first thing to observe in addition to his striking general beauty, chestnut plumage relieved by black and white on head and neck, was the brilliant cobalt hue of his

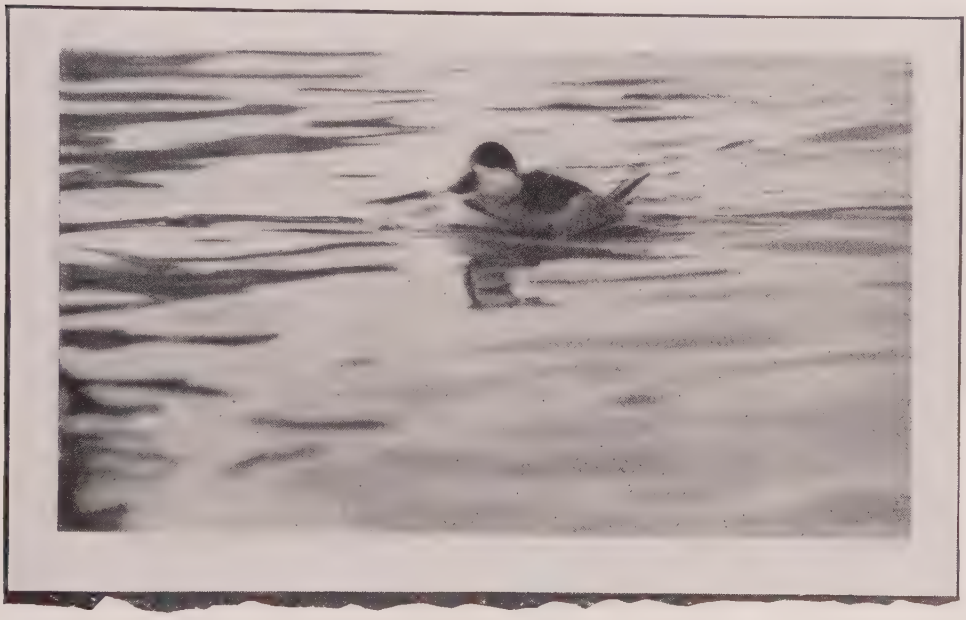
Taken in San Francisco *Photo by the Author*

RUDDY DUCK

bill. It was not merely blue, but a glowing blue. He dived repeatedly, and emerged each time radiant with beaded moisture; and as he warily passed our bows, he paused now and then to make gestures whose significance, whether of fear or defiance, I could not determine, although I suspect the latter. He first reared his head and tail to the utmost, straight up and parallel to each other; then let his head subside by spasmodic jerks, as though he were a bag of wind and somebody were deflating him by successive raps upon the head. Each subsidence was accompanied by a little grunt, and to conclude the whole he thrust his head suddenly forward with a grunt louder than all; thus: *chut - chut - chut - chut - chelub.* It was a properly ridiculous performance from a human standpoint, but I suppose if I had been a drake Ruddy, I should have flown into a pretty passion and given him a drubbing for his impudence. This particular bird was a fat rascal, for when he tired of issuing vain challenges, he took to wing, and as he did so, although aided by a light breeze, he found it necessary to patter upon the surface for at least a hundred feet before he cleared.

1842

While I had no doubt that the behavior detailed above was a part of the "breeding cycle," it was a privilege to witness a repetition of the performance with the stage more fully set, as I did on May 9th, 1914, from a hidden vantage point overlooking Laguna Blanca. A male, very much aroused, was trying to entertain two females, and he seemed to be quite impartial in his treatment of them. His ordinary and frequently repeated act was a rapid rehearsal of the series described above, i. e., the successive depression of the head, culminating in the suddenly outstretched neck and the *chelub* cry, but each successive series did not occupy above one second



Taken in San Francisco *Photo by the Author*

RUDDY DRAKE

in performance. This passionate exercise was varied by an occasional ostentatious flight of about six feet, during which the bird emitted a xylophonic, rolling or clucking note, very much like the sound made by a distant woodpecker on a dry limb. During this excitement, also, the fellow reared black crests over his eyes to the height of half an inch or so. Whether this was accomplished by a local inflation of the skin, or by a muscular puckering and humping of the integument, one could not tell; but he looked so like a huge bullfrog in feathers, that I nearly laughed out. At the approach of another male, our hero charged valiantly, whereupon the intruder dived, and was pursued furiously under water. Naturally, a gallant who was about to capture two hearts at a stroke would resent interruption.

Ruddy Ducks nest in greater or less numbers upon most of our lakes and coastal ponds. During the nesting season the female is excessively timid and may not often be seen—never in the vicinity of her nest. The male, on the contrary, spends much of his time in the open water hobnobbing with grebes and Redheads, and seems to have about as important business as the average politician. The nest is hidden in the reeds of some low island or marshy brink. The birds are said to occupy old coot nests at times, and at others to build up very handsome structures of their own, raising the eggs a foot or so above the surface of the water. At other times a shabby shakedown may lie upon the wet muck of a swampy island. Usually some sort of a floating structure is devised, and if this can be concealed under a canopy of broken-down tules, so much the better for the bird.

No greater surprise could be devised in oölogical duckdom than the egg of a Ruddy Duck. With surface rough and chalky, where others are oil-finished, dead white, where others are tinted, it is still the extraordinary size which provokes astonishment. The bird is notably small as ducks go, although of a compact and stocky build, but the egg is easily the largest of inland duck eggs, not excepting those of the Canvasback. On this account it might readily be believed that a half dozen should constitute a set, and it often does; but we are told that one of these birds sometimes deposits as high as a dozen or fourteen eggs; and there are two instances on record, both by A. M. Ingersoll, Santa Cruz, June 26, 1883, of nests containing nineteen eggs, each set disposed in three layers.

The Ruddy Duck lines its nests sparingly, or not at all, with down, trusting evidently to the protective cover of the reeds. Nevertheless, I have found exposed nests, which at the approach of noisy footsteps had been hastily covered over with broken tules and debris scratched from the edge.

Nature's purpose in devising these massive eggs is quickly discovered when we see that the newly hatched young, more fully equipped than those of other species, are able to dive at once. On this account, therefore, the mother bird, if caught in the open with her brood, does not concern herself over their welfare. But she beats a hasty retreat to cover, knowing that the ducklings will follow by submarine route.

The "Game Birds of California" predicts that when the more desirable species are still further reduced in numbers, the covetous eye of the gunner will fall upon this bird, as it has upon the Mud-hens of the East. Would that some earnest word of mine might shield them from such a dismal fate. Our pond life is becoming pauperized enough as it is, God knows. Why should we fall upon these innocent and ardent little Spats, and terrorize them until they are forced to drag out a surreptitious

existence? until they subsist, like the Christians of old, in some catacombs of tainted ooze and reedy horror? Come now, let us make a truce with the children of life, and share with them the good things which we plentifully enjoy. There is happiness enough for all; and some of us there are who cannot be happy unless all are.

No. 371

Lesser Snow Goose

A. O. U. No. 169. **Chen hyperboreus hyperboreus** (Pallas).

Synonym.—WHITE BRANT.

Description.—*Adult:* Entire plumage, except the primaries and their coverts, pure white; head and neck often heavily tinged with rusty; primaries blackish and with dark shafts on exposed portions, grayish and with white shafts basally; primary coverts gray with dark shafts. Bill stout, short, with widely gaping commisure, showing black edges of mandibles; said to be purplish red in life, drying dull orange, nail white; feet and legs (drying) orange-red. *Immature:* Head and neck pale gray; back and wings, except quills, gray, varied by mesial dusky and marginal whitish, notably on wing-coverts and tertiaries; remaining plumage white. Length about 635 (25.00); wing 406.4 (16.00); tail 152.4 (6.00); bill 50.8-54.6 (2.00-2.15); tarsus 76.2 (3.00); middle toe and claw 58.4 (2.30).

Recognition Marks.—Brant size; pure white plumage with conspicuous black primaries (hence, not difficult to determine on the wing).

Nesting.—Does not breed in California. *Nest:* On ground, of grass and moss with copious lining of down. *Eggs:* 2 to 6; dull yellowish or creamy white. Av. size 80.5 x 54 (3.17 x 2.13). *Season:* June.

Range of *Chen hyperboreus.*—Arctic North America, south in winter to the Southern States, Mexico, and Japan.

Range of *C. h. hyperboreus.*—Western America and northeastern coast of Asia. Breeds in the western portion of the American Arctic regions, west at least to the mouth of the Mackenzie; occurs in summer in northeastern Siberia, but is not known to breed there; winters chiefly in California, but also from British Columbia, southern Colorado, and southern Illinois, south to Texas and Louisiana, Jalisco, northern Lower California, and Japan. Specimens obtained in winter and during migrations from further eastern points are, theoretically at least, intergrades with *C. hyperboreus nivalis.*

Distribution in California.—Abundant winter resident in the Sacramento-San Joaquin Valley, and on the western Santa Barbara Islands, especially Santa Rosa; less common elsewhere south to San Diego and east to the Colorado River.

Authorities.—**Gambel** (*Chen hyperboreus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Coues,* Birds of the Northwest, 1874, p. 548 (syn., desc. habits, foods, etc.); *Tyler,* Pac. Coast Avifauna, no. 9, 1913, p. 18 (San Joaquin Valley).

WHITE is a color of ill omen in a bird's plumage. It should typify purity; but it spells EASY MARK, instead, to the sportsman; and the sports-

man under his various disguises has a long lead over the poet in this country. The color is, of course, highly protective in a region of snow and ice, such as this bird frequents in summer. Nor is it difficult to trace its protective significance in the case of pelicans, which sit along the margin of some lake, like windrows of alkaline froth; nor in that of certain seabirds, whose white is the mere embodiment of storm-tossed billows. But paint a *game-bird* white, and put the crazy notion into his noggin of wintering in California—the case is quite hopeless.

The great interior valley of California, the Sacramento-San Joaquin-Tulare section, has been from time immemorial the winter home of America's geese, and especially of the two Snow geese, *Chen hyperboreus* and *C. rossi*. It is scarcely possible to exaggerate the number which frequented this region before the advent of the white man. It must have run into the millions, and may easily have reached the tens of millions. Practically the entire population of the North, breeding and bred on the Arctic shores of British America, in Banks Land and, presumably, upon the still undiscovered Hyperborean land mass, poured across the defiles of the Sierras in late September and early October, and covered the central California landscape as with a quivering white blanket. Of their appearance in the Fifties Heermann wrote:[1] "Frequents more especially the salt marsh districts, though found also inland. The food which they select in these localities gives their flesh a strong sedgy flavor, which causes them to be but little esteemed. These birds often cover so densely with their masses the plains in the vicinity of the marshes as to give the ground the appearance of being clothed with snow. Easily approached on horseback, the natives sometimes near them in this manner then suddenly putting spurs to their animals gallop into the flock, striking to the right and left with short clubs and trampling them beneath their horses' feet. I have known a native to procure seventeen birds in a single charge of this kind through a flock covering several acres."

Taken in Solano County

Photo by W. W. Richards

A GAGGLE OF WHITE GEESE
ON THE SUISUN MARSHES

Gone are those days, never to return. The insatiable white man, most barbarous of

[1] Rep. Pac. R. R. Surv., Vol. X. p. 68.

nature's children, was quick to "improve" upon native methods. Stalking horses, or stalking heifers, were trained, and from such vantage points the hunters mowed down the luckless birds in thousands. Agricultural demands, soon arising, set a price on the heads of these grass-eating fowls and they were slaughtered by thousands beyond any possible demand of the market, and simply that the fields of growing wheat might be rid of their presence.

Photo by F. H. Holmes

LESSER SNOW GEESE IN CAPTIVITY
FLOCK ALSO CONTAINS ROSS SNOW, WHITE-FRONTED, AND HUTCHINS GEESE

Snow Geese still visit California by thousands. They have no other place to go. A newcomer, visiting Los Baños or the fields about Sacramento, and ignorant of former conditions, would still get the impression of abundance. Latterly the birds have taken to wintering on the island of Santa Rosa, and there may be as high as 30,000 or 40,000 birds there at a time. But these are all there are; and the teeming North has been bereft of her snow children. One of the most sublime spectacles of fecundity in existence, the breeding grounds of the Arctic, has been

reduced to a ghastly farce and a fear of extinction. The presence of this colossal fact is so glaringly manifest, and so painful, that one who loves the birds and really cares for the cultural development of our nation can hardly bring himself to contemplate the details.

But further waste is absolutely unnecessary. Control of all migratory birds has been vested in the Federal Department of Agriculture. Market-hunting has been stopped. Regulations have been passed which, if rigidly enforced, may possibly slow down the present rate of destruction one half, or such a matter. If only people could be brought to realize a few homely truths, the slaughter of wild-fowl might be discouraged outright. I mention a few of them:

1. The "sporting" instinct is not so much a desire for slaughter as it is a perfectly commendable desire to be out of doors with some definite, socially approved objective at hand. Give this instinct other outlets.

2. The flesh of wild birds is no longer *necessary* as human food.

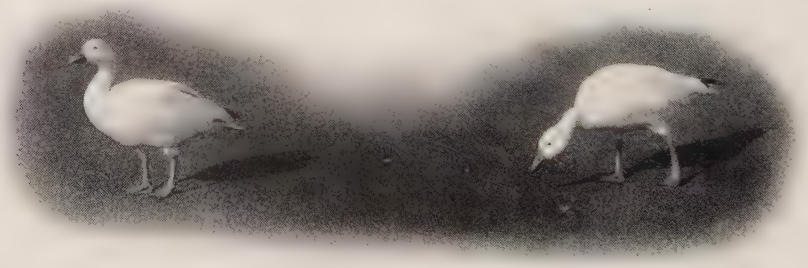
3. The continued domination of Nature by terror is increasingly revolting.

4. At only half the present rate of destruction per human capita, all "game birds," save possibly the western quails, will be reduced to a state of practical outlawry or else destroyed.

5. The instincts of the chase are neither incorrigible nor difficult to divert; but they are being artificially stimulated by the advertising of guns and ammunition, and by the perverse social expectations resulting therefrom.

6. Future ages will never cease to curse us if we squander the heritage of our wild life.

We have tried temperance and "moderate shooting," and it has proven a rotten failure. The birds are *still on the decrease*. Isn't it time for prohibition?



Taken in San Francisco *Photo by W. K. Fisher*

LESSER SNOW GEESE

WING-TIPPED BIRDS IN GOLDEN GATE PARK

No. 372

Blue Goose

A. O. U. No. 169.1. **Chen cærulescens** (Linnæus).

Description (of four winter specimens in the collection of the Museum of Vertebrate Zoology).—Head and neck all around white, strongly tipped, especially anteriorly, with ochraceous-orange; general body plumage sooty gray, or mingled dusky and glaucous-gray, with paler, brownish, edgings, color darkest on lower neck all around; lower abdomen, flanks, and lower tail-coverts sordid white, more or less tinged with gray centrally; rump and upper tail-coverts (nearly concealing tail) light bluish gray; wings glaucous-gray, purest on coverts, blackening on tips of flight-feathers; tertials and secondary coverts blackish, centrally, with whitish edgings; tail bluish dusky, tipped with white. Ochraceous-orange of head and neck probably not found in breeding plumage. Length 812.8-889 (32.00-35.00); wing 431.8-457.2 (17.00-18.00); tail 140 (5.51); bill 58 (2.28); depth at base 34 (1.34); tarsus 82 (3.23).

Recognition Marks.—Head and neck *all* around, in contrast with dark body plumage, distinctive. Somewhat larger than Emperor Goose (*Philacte canagica*), and plumage not conspicuously scaled.

Nesting.—Does not breed in California. An *egg*, laid in captivity (now in M. C. O. coll.) is dull grayish white, and measures 72.64 x 50.04 (2.86 x 1.97).

General Range.—Eastern North America. Breeds on Baffin Island and probably in northern Ungava, and winters south to Louisiana and Texas. Has occurred during migrations in Florida, Cuba, and the Bahamas, and in winter in California.

Occurrence in California.—"Rare winter visitant to the Sacramento-San Joaquin Valley" (Grinnell). Two published records: that of two immature birds killed near Stockton about Feb. 1, 1892 (Belding); and one taken at Gridley, Butte County, Dec. 15, 1910 (reported by Grinnell).

Authorities.—Belding, Zoe, vol. iii., 1892, p. 97 (Stockton); *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 26, 1906, p. 68 (distr. and migr.); *Grinnell*, Condor, vol. vol. xxii., 1920, p. 76 (Gridley, Butte Co., one spec.; history of occurrence).

IT SEEMS to be almost literally true that all good geese come to California. We will not press the point to its remotest implications, but it is matter for congratulation that this voyageur from northeastern Arctic America has recently signed California's goose register *in ipso sanguine*. Thirty years ago Lyman Belding, of Stockton, secured two birds whose *heads* Ridgway identified as belonging to immature Blue Geese, and Belding himself saw others in the succeeding years. It was only in 1910, however, that a specimen was preserved and mounted, and brought (in 1920) to scientific notice. For all we know, the bird may have been of fairly regular occurrence in the "good old days."

For more than a century and a half the Blue Goose has been a will o' the wisp, a bird of mystery alike to sportsmen and scientists. The creoles of Louisiana had been contentedly picking his bones all this while,

but in interior localities he had been a sort of apparition, to be expected only once in a "blue moon." To the myopic sight of science, *Chen cærulescens* appeared to be a sort of adolescent form, a child that had never grown up. Finally, only a year or so ago, a venerable scientist of the Old World announced, to our self-reproach and manifest relief, that the so-called "Blue Goose" was only an immature phase, a second- or third-year bird, of *Chen hyperboreus*, the Snow Goose. Why, of course! How simple! But NOW (1922), after another of his famous winters in the Arctic, Don McMillan comes back from Baffin Island with a Blue Goose under one arm and her eggs in his hat. Now what do you know about that!

No. 373

Ross's Snow Goose

A. O. U. No. 170. **Chen rossi** (Cassin).

Synonym.—"CHINA" GOOSE.

Description.—Coloration exactly as in *C. hyperboreus*. "Bill small, outline of feathers on side of upper mandible nearly straight instead of strongly convex, studded at base with numerous papillæ, and with much less exposure of teeth in a blackish recess than in any of the other species." Length about 533.4 (21.00); wing 368.3 (14.50); tail 127 (5.00); bill 38.1 (1.50); tarsus 63.5 (2.50).

Nest and *Eggs* unknown.

General Range.—Breeding range unknown, but probably on terra incognita north of Mackenzie; observed during migrations between Kent Peninsula and the mouth of the Anderson River, and southerly from Manitoba to Oregon; winters in California. Casual in Colorado, Louisiana, and northern Mexico.

Distribution in California.—Common winter resident, chiefly in the Sacramento-San Joaquin Valley, but also (especially formerly) about Los Angeles.

Authorities.—**Coues** (*Anser rossii*), Birds of the Northwest, 1874, p. 553 (San Francisco); *Daggett*, Condor, vol. iii., 1901, p. 15 (Newport, Orange Co).

THE OÖLOGIST has risked stormy seas to visit isolated islands, and endured severe winters to claim rarities from the shores of the Arctic. As a consequence, the nesting habits of most birds are known. There are at least two birds, however, which seek a safe retreat so far to the north that for many years they have successfully eluded egg-collectors, and their nests and eggs have remained a secret known only to themselves. One is the Surf Bird, a migrant along the California coast, and the other, the Ross Goose, a common winter visitant of the great valleys of the state. Up to 1906 not even a summer record for the latter species existed. The supposition is that the breeding grounds of this bird lie on the Arctic islands north of the Mackenzie River.

Another interesting thing about this bird is that California valleys alone furnish good enough feeding grounds to lure him as a winter tourist, for in no other state is the Ross Goose found during the middle of the winter. The bird has been taken as far south in California as Orange County, but probably does not go as far south as Mexico.

The Ross Goose also stands out among the galaxy of California geese because of its remarkable migration route. According to W. W. Cooke, our greatest student of migration, the Ross Goose selects the following route: On leaving the Arctic islands north of the Mackenzie River in the fall, it travels up the valleys of the Mackenzie and Athabasca rivers in company with hundreds of thousands of other waterfowl bound for their winter homes on the coasts of the eastern United States and the Gulf of Mexico. But on reaching the northern boundary of the United States it parts company with its traveling companions, and while they continue south and southeast along the usual migration route, it turns to the southwest, crosses the main range of the Rocky Mountains and the high Sierras,

Photo by F. H. Holmes

ROSS SNOW GEESE

FLOCK ALSO CONTAINS THREE OTHER SPECIES. NOTE THE MUCH SMALLER BILL OF THE ROSS GOOSE AS CONTRASTED WITH *C. hyperboreus*.

and settles for the winter in California. Two ranges of snowclad mountains form no barrier for this tireless traveler.

The Ross Goose rarely flocks by itself, but congregates with flocks of the Lesser Snow Goose. Only the smaller size, about one-half the bulk, and the peculiar corrugations on the bill separate it from the common Lesser Snow Goose, which it resembles in color. A trained ear can be relied upon to distinguish flying birds by their call, which is shrill and of a falsetto quality. Young birds are recognized by their grayer plumage. White geese, as a rule, fly in a U-shaped flock rather than in a distinct V-shape.

Although formerly often seen in the market, the Ross Snow Goose has always been classified along with the Lesser Snow Goose as a less desirable bird for the table. The cheapness of these species in the market attested this also. The meat, although gamey in flavor, is dry and very dark.

This goose feeds like other geese, grass forming the principal item of food. As the birds walk along they crop the grass on one side and then the other. Feeding is confined to the early morning and late afternoon, the middle of the day being spent on water or in a marsh. Many descriptions of fields so covered with white geese that they appeared as if covered with snow have been written, and of course the Ross Snow Goose was partly responsible, for this bird is often found with the Lesser Snow Goose in mixed flocks. According to hunters of the San Joaquin Valley, the Lesser Snow Goose may be most common one year, and the Ross Snow Goose the following year. However, in most parts of the state the Ross Snow Goose is the less abundant of the two.

The old name of "horned wavey," doubtless applied to describe the warty character of the bill and the peculiar wavering motion of white geese in flight, is supplanted in our state by the term "China Goose," the origin of which is not known.

California is responsible for the care of most of the geese in the western part of the North American continent. It is high time she gave more than a passing thought to the possibility that at her door will be laid the blame for the near extermination of several species of geese. As the Ross Goose concentrates in our great valleys during the winter season, we are peculiarly responsible for its safety. Although it secures an immunity from persecution during the summer because of the seclusion of its breeding grounds, it could easily be blotted out of existence in winter, with nothing more than indifference to blame for it. With forethought the species may be assured a place in our fauna. The Federal Migratory Bird Law which has established a closed season and bag limit on all geese, adds greatly to the chance of preserving this unusual bird.

HAROLD C. BRYANT.

No. 374

White-fronted Goose

A. O. U. No. 171. **Anser albifrons albifrons** (Scopoli).

Synonyms.—Laughing Goose. Gray Brant. Speckled Brant. Speckle-belly.

Description.—*Adult:* Forehead and region about the base of bill white,—the latter narrowly, and bordered immediately by dusky; remainder of head and neck all around warm grayish brown; the same color continued on back, fore-breast, and sides, but varied by lighter brownish gray tips of squarish-ended feathers, thus presenting a curious shingled appearance; underparts fading from grayish brown of breast to pure white posteriorly; the breast and belly irregularly spotted or heavily blotched with sooty black; the primaries grayish at base, blackening distally and with shafts mostly white; the tips of the greater coverts white, and the superior edges of the main course of side feathers (overlapping folded wing) also white; upper and lower tail-coverts, and lower belly well up on flank, and sides under folded wing, white; axillars and lining of wing uniform dusky; tail brownish dusky increasingly white-tipped on lateral feathers. Bill orange-yellow with white nail; feet orange or reddish. *Immature:* "Similar to adult, but forepart of head dusky instead of white; lower parts without black markings, and nail of bill dusky" (Ridgw.). Length about 685.8 (27.00); wing 384-422 (15.1-16.6); bill 44-52 (1.73-2.047); tarsus 69.85 (2.75).

Recognition Marks.—Brant size; speckled or "shingled" (black-blotched) belly; grayish brown coloration; white partial mask of face. As distinguished from *A. a. gambeli*: "Size small; bill small; tail-feathers sixteen; coloration in general paler, head and neck grayish; naked skin at edge of eyelid, grayish brown" (Swarth-Bryant).

Nesting.—Does not breed in California. *Nest:* On the ground, of dried grass or tundra moss, feathers, and down. *Eggs:* 4 to 7; dull white, "weathering" and staining to dull greenish yellow, with obscure darker tints. Av. size 81.3 x 53.3 (3.20 x 2.10). *Season:* Late May–June 15.

Range of *Anser albifrons.*—Northern portion of Northern Hemisphere, south in winter to California, Mexico, Cuba, Egypt, northern India, and China.

Range of *A. a. albifrons.*—Breeds in Arctic and sub-Arctic regions of the Old World, and in America from the islands of Bering Sea and Alaska east at least to Mackenzie; winters (in America) from British Columbia to Lower California and west central Mexico; also variously throughout the Eastern States from southern Illinois and New Jersey south to Cuba and northeastern Mexico.

Distribution in California.—Fairly common winter resident and migrant in suitable localities throughout the State, but especially in the Sacramento-San Joaquin Valley.

Authorities.—**Gambel** (*Anser erythropus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Belding*, Zoe, vol. iii., 1892, p. 98 (occurrence in Calif.; dates of arrival and departure, etc.); *Swarth and Bryant*, Univ. Calif. Publ. Zool., vol. xvii., 1917, p. 209, pl., figs. (crit.; desc., meas., etc.).

CALIFORNIA has always been noted for the number of geese that winter within its great interior valleys. In the early days, it was necessary

for the grain man to herd them from his fields, and the settlers of those days tell of the millions of geese which annually wintered in California. Some authorities believe that there is hardly one goose now to one hundred which were formerly to be seen. Even decimated as they are, geese still congregate in numbers in certain localities, and goose-hunting remains a favorite sport. Five different varieties of geese are sometimes seen in one bag, an unheard-of thing in other states!

When the geese first arrive in the fall, and again when they leave in the spring, a constant stream of wedge-shaped flocks pass overhead; and even at night, if the moon be shining, the calls of passing flocks may be noted. Some large gander is usually in the lead, and seldom is the pace-maker seen to be relieved by a companion.

Easily picked out among feeding flocks of geese are the gray ones with orange-colored legs and feet, and breasts blotched with black. A closer

WHITE-FRONTED GEESE AND SNOW GEESE

Photo by F. H. Holmes

view discloses the white forehead, giving rise to the name white-fronted goose. The loud harsh calls are stated by hunters to be of a peculiar quality, and to resemble the syllable "*wah*," and the Indians are said to imitate

this call by patting the mouth. The species is sometimes called "laughing goose," in part, perhaps, on account of its grinning expression, but also no doubt because these "*wah wah wah*" notes are thought to resemble human laughter. The speckle-bellies call much less often than white geese and they are sometimes recognized by their silence. In flight, calls seem to be restricted to a few "*peer wekes*" by the leader.

Taken in San Francisco *Photo by W. K. Fisher*
WHITE-FRONTED GEESE
WING-TIPPED BIRDS IN GOLDEN GATE PARK

Of the two varieties of white-fronted goose, the "speckle-belly"—"gray-goose" or "checker-breast" of the hunter—is the smaller and most common in California. A giant form rarely seen is called the Tule Goose. Although found throughout central and western North America and northeastern Asia in winter, the breeding grounds are restricted to the Arctic coast from northeastern Siberia east to northeastern Mackenzie and south to the lower Yukon valley.

The white-fronted goose is widely distributed over the state during the winter season, even frequenting some of the islands in the Santa Barbara Channel, but it is most numerous on the open plains and in the extensive marshes of the Sacramento and the San Joaquin valleys. There is considerable fluctuation in numbers from year to year, however. Of the many varieties wintering in California, this goose is usually first to arrive in the fall and the last to leave in the spring. Eagerly they seem to take possession of these great bountiful valleys, and loth are they to leave them for colder climes. It has even been recorded as early as September 7 and as late as May 3. Newspaper articles predicting an early winter because of the arrival of northern migrants are usually based on the early arrival of this goose.

During the middle of the day white-fronted geese usually loaf on some body of water, or stretch of marsh, feeding early in the morning, in the evening, or during the night. The flights from the loafing grounds to the feeding grounds are oftentimes very regular, the time of arrival and departure not varying more than fifteen minutes. During periods of stormy weather, these geese often fly over in large flocks, apparently with no definite object in view other than change of feeding ground.

The food of the white-fronted goose is made up almost entirely of

grass. It is not averse, however, to feeding on sprouting grain, and in years past it has been responsible, along with other geese, for considerable damage to grain.

The speckle-breast is one of the most highly prized geese for food, and formerly was a common bird on the market. The fact that it can be easily approached by the gunner may also account for its frequent use as a table bird. Pits dug in the ground in localities where the birds are known to fly regularly are most commonly used as blinds in hunting them. In market hunting some ruse, such as hiding behind a grazing steer or horse, was formerly resorted to in order to make a good kill. Hunting of this sort, "bull-hunting," allowed of unjustifiable slaughter, hundreds of geese sometimes being killed by four shots from a large-bore gun,—with the result that laws were passed which eliminated it. At one time so abundant that ranchers had to herd geese from their grain fields, they are now so greatly reduced that there is probably not more than one bird to the hundred formerly found in this state, as noted above. Until recent years geese received no protection whatever, and since their numbers are concentrated in California during the winter season, a false idea of their real numbers has become current.

Large flocks of geese utilize Tulare Lake as a loafing ground. A few years ago a dry winter forced these birds to feed in the near-by reclaimed areas planted to grain. As a result some damage was done, but as is often the case, it was greatly exaggerated. In many instances, the cropping of the plants improved conditions by making them stool out better. Reports later showed that a record harvest had been made on the very ranches where complaint was greatest. The situation was fortunately relieved by a rainstorm which sprouted the grass and scattered the birds.

HAROLD C. BRYANT.

No. 374a Tule Goose

A. O. U. No. 171a. **Anser albifrons gambeli** Hartlaub.

Synonyms.—AMERICAN WHITE-FRONTED GOOSE. CALIFORNIA GOOSE.

Description.—Similar to *A. a. albifrons*, but size much larger; bill, especially, larger. "Coloration in general darker, neck dark brown, head blackish; tail feathers, male, eighteen, female, sixteen; naked skin at edge of eyelid, yellow or orange" (Swarth-Bryant). Length 762 (30.00) or over; wing 420-475 (16.54-18.70); bill 53-62 (2.086-2.44).

Nesting.—Not distinguished from that of preceding form.

Range of *A. a. gambeli.*—Known only from its winter home in California. Surmised to breed in the American Arctic somewhere east of the range of *A. a. albifrons.*

Distribution in California.—Known only from the tule sloughs of Butte Creek in the north-central Sacramento Valley.

Authorities.—Swarth and Bryant, Univ. Calif. Publ. Zool., vol. xvii., 1917, p. 209, pl., figs. (crit., desc., meas., etc.).

The White-fronted Geese

UNTIL RECENTLY it was supposed that but one variety of the white-fronted goose was to be found in California, but persistent rumors of a very large variety which occasionally appeared in the marshes near the Marysville Buttes in Sutter County led to the discovery of a heretofore unrecognized bird for the state. This larger white-fronted goose was known locally to hunters as the "tule," or "timber goose," and the former name has now been officially applied to it. However, the new bird assumed the scientific name of the common white-fronted goose, which in turn has had to take the name of the European species, from which it does not differ. We thus have among the white-fronted geese three different varieties of like coloration, but of unequal size, just as we have three "editions" of the Canada goose. The tule goose is comparable to the Canada goose, the white-fronted to the Hutchins, and the small Asiatic white-fronted to the cackling goose.

Why the tule goose did not find a recognized place among the waterfowl of this state many years ago is the more difficult to explain when we consider the extensive hunting by sportsmen and the thorough study of our bird life by naturalists. Even the meager knowledge that we now have shows the tule goose to differ from the white-fronted goose in appearance, habits, and call-notes.

As a rule, tule geese are to be found in small flocks, separated from flocks of the common white-fronted goose, perhaps feeling a little superior to them. In flight the longer neck of the tule goose is quite noticeable as it is silhouetted against the sky. The larger bird frequents the water of the ponds and sloughs surrounded by tule and willows, is more wild, resorts to remote places, and its notes appear to be sufficiently coarse and harsh so that its calls can easily be distinguished by a hunter. This goose is difficult to secure because of its seclusive habits, and because it is not easily decoyed, and this may account in some measure for its rarity.

In hand, the tule goose is recognized by its large size, comparing in bulk to the honker and weighing from 6½ to 7½ pounds before being dressed. The average length of the bill is 57 millimeters, as against 48 for the white-fronted goose. All of the specimens thus far examined possessed a conspicuous yellow eyelid when fresh.

Although all the known specimens of the tule goose have been taken from a limited area in the Sacramento Valley, yet this goose may have a wide distribution in California, and may even be found more abundant in other states. Owing to a lack of specimens of breeding birds, we have not even a limited knowledge of the summer home of this goose. It seems probable that the breeding grounds of this species when found will lie east of those of the white-fronted goose in Alaska, in which case the

main migration of the species may be through the Mississippi Valley. The original description of the tule goose, as given by Hartlaub, was made from a specimen taken in "Southern North America."

The sportsman or naturalist fortunate enough to secure a tule goose may credit himself with one of the giants among the geese and one of the rarer water birds of the state, one long overlooked by scientists.

HAROLD C. BRYANT

No. 375

Canada Goose

A. O. U. No. 172. **Branta canadensis canadensis** (Linnæus).

Synonyms.—"WILD GOOSE." COMMON WILD GOOSE. HONKER.

Description.—*Adult:* Head and neck glossy black; a large white triangular patch on either cheek, the two usually confluent on throat—occasionally an indistinct white collar at base of black; back and wings rich grayish brown; fore-breast and below lighter grayish brown, tipped with pale fulvous or grayish white; heavier toned on sides, where presenting a shingled appearance and shading into color of back; lower belly, under tail-coverts, longer upper tail-coverts and flanks well up on rump, pure white; rump and tail black; primaries blackening at tips; bill black; feet dusky. Tail 18-20-feathered. *Immature:* Similar, but white of cheeks and throat more or less mixed with blackish. Length 889-1066.8 (35.00-42.00); wing 508 (20.00); tail 177.8 (7.00); bill 58.4 (2.30); tarsus 90.2 (3.55).

Recognition Marks.—Eagle size; black head and neck with white cheek-patches connected across throat, and large size, distinctive.

Nesting.—*Nest:* Of twigs, reeds, weed-stems, grasses, and the like, lined with down, often massive, sometimes very scant; on the ground, on a cliff, or in a tree (a deserted Osprey's nest and the like). *Eggs:* 4 to 7; pure white, becoming dingy, "dull yellowish white," or even dull greenish gray as incubation advances. Av. size 86 x 58 (3.386 x 2.28); index 67.4. *Season:* April 15–May 15.

Range of *Branta canadensis.*—North America, breeding from the central Western States and northern California north to extreme Alaska and the Arctic coasts and islands; wintering south to the Southern States.

Range of *B. c. canadensis.*—Interior North America. Breeds west to the Cascade-Sierra Mountains and to the limit of trees in the lower Yukon Valley, Alaska, north to northwestern Mackenzie (interiorly), and central Keewatin, east (formerly) to Massachusetts, south to Tennessee (formerly), New Mexico, and northeastern California. Winters from southern British Columbia, southern Colorado, southern Wisconsin, and New Jersey, south to Florida, Texas, and southern California.

Distribution in California.—Fairly common winter resident (*fugitive*) at the lower levels, especially interiorly, south to San Diego. Sparingly resident in summer in the northeastern plateau region, breeding from Lower Klamath Lake and Goose Lake and, formerly at least, the Surprise Valley, south to Lake Tahoe.

Authorities.—Gambel (*Anser canadensis*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Belding*, Zoe, vol. iii., 1892, pp. 99, 100 (occurrence in Calif.); *Ray*, Condor, vol. xiv., 1912, p. 67, figs. (nesting at Lake Tahoe; desc. habits, nest and eggs); *Swarth*, Univ. Calif. Publ. Zool., vol. xii., 1913, p. 1, figs. (occurrence in Calif.; crit., desc., meas., etc.).

HONK, honk—honk, honk! What a stirring sound is that which summons us from whatever task indoors, and hurries us out hatless, breathless, into the crisp March air to behold a company of wild geese passing forward into the frosty North! *Honk, honk!* We think madly of our gun upstairs, for the geese are provokingly near, and we hear the thrilling swish of the low-sweeping wings; but we take it out in great boasts to our similarly hatless neighbor, of what we could have done if the gun had been put together and we had known that those foolish geese were coming right over town. And when the great birds become a row of trailing points on the northern sky, a fever of strange unrest burns within our veins, and we wonder through what ancestral folly our wings were clipped, and our race condemned to unceasing barnyard toil.

Taken in Washington *Photo by the Author*

CANADA GEESE

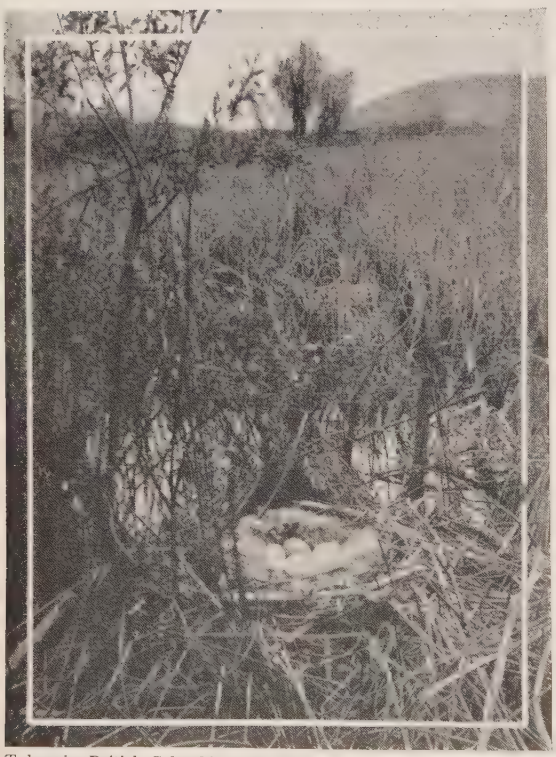
DOMESTICATED BIRDS HATCHED FROM WILD EGGS

The Canada Goose has only two cardinal points on his compass, North and South; and unlike most migrants, he does not go by the map, nor follow favorite paths through the air, but flies straight over hill and dale, city and hamlet alike, until the goal is reached, or until the weather discourages further movement for a time. The geese move usually at a considerable height, forming open V-shaped figures, with the oldest or strongest gander in the lead at the apex; or else in single oblique lines. Each bird demands as clear a field as possible, and this is best secured by an arrangement which allows each goose to look over the wing of the one next preceding, right or left, according to the branch

of the V which it occupies. The line of march shifts and changes under the eye, as the hindmost birds become dissatisfied with their positions, and change sides, or as tired leaders give place to fresher birds; and the changes are accomplished not without much lordly discussion in high-pitched *honks*.

When selecting a pond or corner of the lake in which to spend the night, the birds first circle about cautiously at a safe height, and then slide down the air from a point a mile or so away, approaching the water silently and at a low angle. In rising from the water or the ground, the Geese prefer to make a little run or preliminary flutter, to get headway, but are capable of clearing either the water or the ground by a sudden spring.

So the author wrote in "The Birds of Ohio" some twenty years ago. And what was there said holds good of the Honker everywhere, save that in the southern portion of its range, the Canada Goose clears for the North in February instead of March.

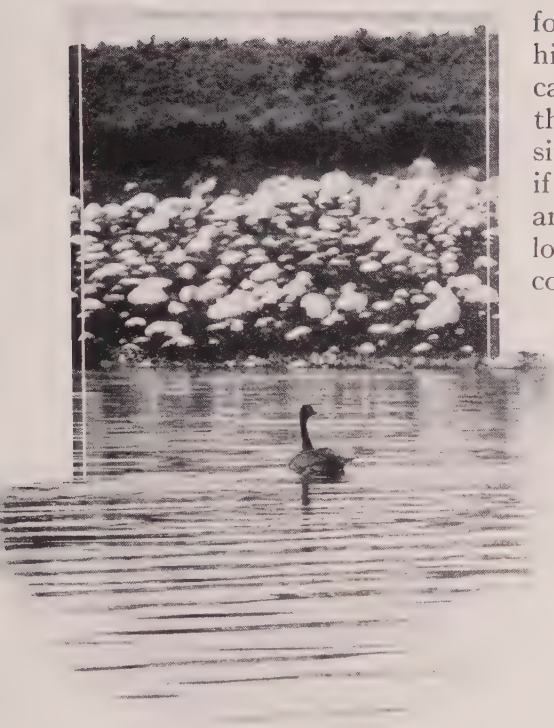


Taken in British Columbia *Photo by E. D. Sismey*

NEST AND EGGS OF CANADA GOOSE

Like most geese, this species feeds principally upon grass and tender herbage, berries, sedge-roots, and aquatic plants. The stubble-fields of the Sacramento Valley have been for three quarters of a century past the classical resort of the Canada Goose and its congeners. In winter the birds are very regular about their meals, rising punctually an hour or so before daybreak, and flying to the distant fields to glean for two or three hours the fallen morsels of wheat. The middle of the day is spent upon the pond or in some backwater bayou, dabbling for watercress and duck weed, or else enjoying one-legged slumbers on the sandbar. Hunger drives them to forage again late in the afternoon, usually to the same spot visited in the morning. At such times the geese are exceedingly vigilant and wary. And it would appear that when feeding upon the ground one or more of their number are charged with sentry duty.

Their suspicion of all mankind is deeply planted and freshly watered, but the goose psychology works under several limitations. A lone goose



Taken in Washington *Photo by the Author*

MOTHER GOOSE

for instance, having none to counsel him, appears at times to be quite incapable of making decision, and allows the fatal approach of the hunter. The situation is still further compromised if the lone bird happens to alight among decoys. "It's plumb scandalous," reasons the bird, "the man is coming and these birds stand here like clods. But they ought to know; they were here first." And the real bird awaits his doom. Mr. Bowles tells me that under such circumstances he once killed a perfectly able-bodied bird with a stone.

They are not afraid of cattle, however, and in the less scrupulous days the pasturing flocks were slaughtered by hunters who had approached under shelter of a led horse or a cow. Sometimes a sportive heifer will resent the intrusion of wild ducks or geese upon her domain, and it is most amusing under such circumstances to see the astonished fowls scramble out of the "cow critter's" way as she charges about and hooks at them. Such a departure from the established order of things constitutes a quite unclassifiable phenomenon, and the birds never think of escape by flight.

Let a gunner come creeping along the ground on hands and knees, and his guile is detected at half a mile, yet the self-same birds appear to have no conception of a danger which lies *below* the surface of the ground. Advantage is taken of this weakness through the digging of shooting-pits in the wheat-fields of the Sacramento country. Tame birds or wooden decoys are put out, and it makes no difference how many wild geese pass overhead, so the hunter keeps to his pit until the birds are settling.

But the palmy days of shooting are over, they tell us. Our fathers helped themselves a little too liberally. What with market shooting and the increased settlement of the Northland, the wild things have been reduced to a shadow of their former substance. The youngster, indeed, may think he is seeing "a lot of birds" if a dozen Honkers thrill his young

ears; but the old hand knows that it is about time to put up the gun and to *study* natural history instead.

Fortunately, opportunity still remains, even in California, for those who wish to study the wild goose at home. The Honker still breeds in very limited numbers, as far south as Lake Tahoe. It has also been reported within a dozen years both at Eagle Lake and at Lower Klamath; and in 1912 I found it breeding at Goose Lake, in Modoc County. It is unquestionably the elevation of these lakes (Goose Lake is nearly a mile high) which makes them a congenial home for a species which ordinarily nests much farther north.

Canada Geese always nest in fair proximity to water; but the precise nature of the nest support, or of the materials (if any) used in construction, vary with local conditions. The site may be an old muskrat's nest, or a bed of tumble-down tules in a swamp, or a low-lying grassy island in a lake; or it may be a rocky islet, a rough hillside, or even (in the North, at least) an ancient nest of Buzzard or Osprey. A few sticks and grasses may serve to hold the eggs in place on a flat stone, or a tasty pyramid of grasses and soft trash may support from four to seven dingy white or dull buffy eggs, deeply imbedded in down. Some eggs collected by the Treganzas in the vicinity of Salt Lake are glistening white. Ray describes those obtained at Tahoe[1] as dull yellowish white, but I have seen northern eggs, near hatching, which were nothing less than dull greenish buff.

The sitting goose remains at her post for four weeks, and she is attended by the gander, who maintains a constant vigil at her side and accompanies her during the foraging trips. The goslings, when hatched, are covered with down of a bright grass-green hue, mottled with a shade of olive. They swim from the shell; and by the second or third day they have attained such robustness that their capture by hand from a boat is a very difficult matter. Hiding is the long suit of the mother goose when in charge of a tender brood; and if surprised at such a time in open water, she manages to "scootch" down and hug her feathers close until she does not appear above one-third her normal size. If the ruse is discovered she flees reluctantly and summons her mate, who joins his anxious cries with hers, *Honka-honka-honka!* The Geese, while fairly solitary as to the positions of the nests themselves, begin to reassemble as soon as their broods are hatched. Under the threat of a common danger the local clan musters, and youngsters of every age join their mothers in a raft which moves off over the water as a unit. It was such a flock of thirty-five members which we saw on the 10th of June on Goose Lake, although the youngsters at the time were none of them over half grown.

[1] Milton S. Ray in The Condor, Vol. XIV., March 1912, p. 68.

The opprobrious use of such words as "gull," "goose" and "loon" is, we suspect, rather a record of human narrow-mindedness than a lawful indictment of the birds so named. In particular the great American Goose is anything but a "goose" when it comes to matching wits against the "human warious." In the struggle for existence, this bird has displayed a shrewdness, a cunning, a degree of intelligence, as well as a devotion of parental duty, which might well command the admiration of any sincere sportsman. Judged even by the lowest standards of appreciation, the goose is noble quarry; and so judged, not even the most ardent pursuer would wish to see the race exterminated. It is time, then, to call a halt. No race of birds, however gifted, can stand up forever against the purposeful assaults of Christendom. The Canada Goose is doomed to extinction unless the bag-limit can be still further reduced, and the species accorded a definite and *absolute* protection during the nesting season.

No. 375a Hutchins's Goose

A. O. U. No. 172a. **Branta canadensis hutchinsi** (Richardson).

Synonyms.—Lesser Canada Goose. Little Wild Goose. Gray Brant.

Description.—Precisely similar to preceding species in coloration, but averaging smaller; tail, normally 16-feathered. Length 635-863.6 (25.00-34.00); wing 431.8 (17.00); tail 152.4 (6.00); bill 44.5 (1.75); tarsus 76.2 (3.00).

Recognition Marks.—Brant to eagle size; like preceding form but smaller.

Nesting.—Does not breed in California. *Nest:* In tundra, of grass, moss, and feathers, with abundant down. *Eggs:* 4 to 6; white, yellowing and soiling with age. Av. size 79 x 53.5 (3.12 x 2.10); index 67.3. *Season:* June.

Range of *B. c. hutchinsi.*—Breeds along the Arctic Coast from northwestern Alaska to the western shore of Hudson Bay. Winters from British Columbia, Colorado, and Missouri south to Louisiana, Texas, and Lower California.

Distribution in California.—Common winter resident and migrant at lower levels practically throughout the State.

Authorities.—Gambel (*Anser hutchinsii*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Belding*, Zoe, vol. iii., 1892, p. 99 (occurrence in Calif.; dates of arrival and departure, etc.); *Swarth*, Univ. Calif. Publ. Zool., vol. xii., 1913, p. 1, pls., figs. (occurrence in Calif.; crit., desc., meas., etc.).

EVERY SCHOOLBOY in the interior of California has awakened in him the desire to know more about the migration of waterfowl as he hears the noisy "honk, honk" of flock after flock of geese passing overhead. Not only schoolboys but every one with the least touch of mysticism—and who has not this sense to a more or less degree?—is thrilled as the flocks pass over by day, and the calls are heard at night. Naturally, these questions always follow: "What kind of birds are those? where do they come from? where are they going? and why do they fly in V-shaped flocks?"

1863

Taken on the grounds of the Sacramento Outing Club, near Pennington, Sutter County

Photo by H. C. Bryant
Use by courtesy California Fish and Game Commission

HUTCHINS GEESE

Of the nine varieties of geese wintering here the Hutchins goose and the cackling goose, often collectively called "brant" by the hunter, are most abundant, perhaps due to the direct route available from their nesting grounds in Alaska.

It has been distinctly proved that the California geese with black heads and white cheeks range in size from the honker, with a total length of about forty inches, to the cackling goose, with an average length of but twenty-four inches. On the main basis of size and separate flocking and breeding grounds, they are divided into three varieties. The Hutchins goose is intermediate in size between the Canada and the cackling goose; and in its return to its northern home it goes further north than the other forms of the Canada goose, even nesting along the shores and islands of the Arctic coast, near the mouth of the Mackenzie River. The southernmost breeding stations are found upon the Aleutian and Near Islands. Most of the birds of this species spend the winter in California, though a few are to be found in the southern United States, west of the Mississippi River.

White cheeks and black legs and feet are characteristic of all members of the Canada group. Variety distinction is largely dependent on size. The Hutchins goose is said to be more noisy than its larger relative, the Canada goose, but lacks the falsetto cries of the cackling goose.

The reason for the V-shaped flock formation, so characteristic of the Canada goose and related species, although not positively known, is commonly explained on the basis of air resistance. Just as a pace-maker in athletics is accustomed to take the brunt of the air resistance, so an old gander takes the heaviest of the labor. The V-shape at the same time allows each bird in the flock to see what lies ahead.

Geese, when flying high, give the appearance of moving slowly, and the stroke of the wing is hardly noticeable. When near by, however, it can be seen that in reality they move rapidly. The difficulty that these heavy birds have in starting, unless able to fly into the wind, has given opportunity to hunters for a close shot by driving quickly towards the birds and making them fly with the wind instead of against it.

Geese spend more of their time on land than do ducks, and locomotion is made easier by longer legs placed farther forward. When feeding in the water they tilt like surface-feeding ducks. When a flock

Taken in San Francisco

HUTCHINS GEESE IN GOLDEN GATE PARK

Photo by the Author

is feeding in the open fields, certain birds appear to act as sentinels, and these give the warning to the feeding birds of the approach of any danger. Geese when feeding, are silent, but when startled and ready to take flight, continually call. Whenever geese are flying overhead, the feeding birds on the ground set up a great racket which is apparently an attempt to attract the flying birds.

The feeding habits of the Hutchins goose are similar to those of the snow and white-fronted goose. They usually loaf on some large body of water, flying twice a day to large open grain-fields in the vicinity, Newly sprouted grain-fields are often cropped short, and in many instances, if the grain is just sprouting, are seriously injured. Fortunately, the birds spend much of their time in stubble-fields, especially if plenty of grass is available.

Where Butte Creek enters the Sacramento River, just west of the Marysville Buttes in Sutter County, there is a large overflowed area which forms a splendid loafing place for innumerable waterfowl. During the winter season the water is filled with thousands of ducks, and the shore and open fields adjacent covered with geese. All the different varieties are to be found here, but usually the Hutchins and cackling geese are most in evidence. Just before sunrise, flock after flock are to be seen flying eastward to the open grain-fields, and about late forenoon a constant stream of birds passes overhead towards the open water. Probably there are few places left in the world where geese congregate in such large numbers. Early spring visitors to such high mountain lakes as Lake Tahoe and Honey Lake report large numbers of migrating geese. It appears that these lakes form a desirable stopping place on their northward migration.

The usual mode of hunting geese is to select some open field where geese are known to congregate. Pits about 30 inches in diameter are dug in the ground and all the earth removed to a distance so that the ground has no unusual appearance which might frighten the geese. Live decoy geese are then placed in wire cages near the pits. These decoy geese attract by their calls the wild birds flying overhead, and soon birds are dropping in. The hunters concealed in the holes fire at the birds on the wing. The geese killed are quickly made to act as additional decoys by staking them up on wires or forked sticks. Less often geese are hunted from duck-blinds placed in a marsh. Like other geese, this species becomes utterly confused in a fog, and invariably flies close enough to the ground to utilize landmarks. At such times the wing shooter is afforded better shots at geese.

HAROLD C. BRYANT

1866

No. 375b Cackling Goose

A. O. U. No. 172c. **Branta canadensis minima** Ridgway.

Synonyms.—Gray Brant. Least Canada Goose.

Description.—Similar to *B. canadensis*, but coloration darker, especially on underparts,—a deep grayish brown abruptly defined against white of crissum; white half-collar at base of black on neck usually more distinct; white cheek-patches usually separated by black stripe, or at least black mottling, on central line of throat, shading into type by insensible gradations; tail normally 14-16-feathered. Length 584.2-635 (23.00-25.00); wing 345.4-368.3 (13.60-14.50); bill 24.1-29.2 (.95-1.15); tarsus 61-69.9 (2.40-2.75).

Recognition Marks.—Size of Mallard; gray coloration; smallest of the Canada Geese.

Nesting.—Does not breed in California. *Nest:* On the ground, of weeds and grasses, lined with down. *Eggs:* 4 to 9; dull yellowish white, soon becoming dingy or dull greenish gray. Av. size 76.2 x 50.8 (3.00 x 2.00). *Season:* May 15–June 15.

Range of *B. c. minima.*—Western North America. Breeds in the Aleutian Islands and along the Alaskan coast from the base of the Alaska peninsula north to Norton Sound. Winters along the Pacific slope from British Columbia to southern California.

Distribution in California.—Common winter resident, chiefly in the Sacramento-San Joaquin Valley, but also south to San Diego.

Authorities.—Cassin (*Bernicla leucoparia*), Proc. Acad. Nat. Sci. Phila., vol. xiv., 1862, p. 323 (San Francisco); *Belding*, Zoe, vol. iii., 1892, p. 100 (occurrence in Calif.; dates of arrival and departure, etc.); *Swarth*, Univ. Calif. Publ. Zool., vol. xii., 1913, p. 1, pls., figs. (occurrence in Calif.; crit., desc., meas., etc.).

LONG before the eastern tourist found in California an ideal place for his winter sojourn, millions of waterfowl had chosen the great interior valleys of the State for their winter home. Indeed, our histories are full of statements regarding the enormous numbers of waterfowl which annually made their appearance in the State when the northern winter, hoary and foreboding in its approach, drove them southward to more genial climes.

An easterner, writing about California geese in 1891, was tempted to say, "I thought that I had seen geese and brant in Dakota, but, like Uncle Toby's reminiscences, they were 'nothing to this.' Snow geese, in white and glistening ranks on the edges of the green grain; gray geese, wavering up and down in slow-waving flocks against the horizon; deliberate geese, only getting up as the train was just upon them; frightened geese, rising on nervous pinions from some sedgy pool by the roadbed, geese, geese, geese! While here and there over the green fields moved men and boys mounted and armed with rifles, actually herding the geese off the sprouting grain . . ."

From among the many geese which winter with us, a very insignificant

one, if size be the criterion, stands out from the rest because of its high-pitched, oft-repeated call-note. The cackling goose, or "yelper," is well named. It is the smallest of the three varieties of Canada goose, all of which are similarly colored. Along with the Hutchins goose, the cackling is one of the best known among the geese because of its abundance.

It takes a prominent place among the countless flocks streaming northward by day and in the unceasing clangor by night which accompanies the return to northern climes. In fact, the cackling goose is oftentimes more abundant than any other variety. In former years, when sale was allowed, this variety along with the Hutchins goose was most often to be found in the market, where it sold under the name of "brant."

Although its nesting grounds in Alaska lie to the south of those occupied by the Hutchins goose, the birds arrive in our great valleys at about the same time, usually the first or second week in October. Having the same habits and often flocking with Hutchins geese, it would be difficult to distinguish the two, were it not for the smaller size and higher pitched call. Even with these distinctive characters, identification must be left to one familiar with the birds unless they are close at hand.

The breeding grounds in northern Alaska are the scene of great commotion when the geese return in the spring. According to Nelson, many pitched battles, where bills and wings are used as weapons, take place among the male cackling geese, and loud calls of many different waterfowl fill the air. The cackling goose builds its nest in the grass on the borders of ponds or on some small knoll. By the time the full set of eggs is deposited, the nest has been lined with soft down-feathers plucked from the female's breast. These serve to make a soft lining, and help keep the eggs concealed and warm when the parent is away seeking food. Parents are very solicitous for their young and become reckless in the face of danger.

The goose hunter in the early days took up his position in a ditch or behind a hedge or even lay flat on his back in a patch of weeds, choosing foggy days when the birds were flying low. In this way, good kills were made. Then, too, a fast horse and light buggy out on the plains, if manoeuvered properly, allowed of near approach to feeding birds. Nowadays, a pit situated where a river or slough makes a sharp turn is productive of best results, although the automobile is sometimes substituted for the fast horse and light buggy.

Although to past generations the coming and going of the geese in their migration was such a familiar sight as to be largely overlooked, future generations will doubtless be deprived of this interesting phenomenon. There are many locations in the State, particularly in the middle coast counties and in southern California, where geese are now so scarce

as to be an object of great interest. It is to be hoped that the rigid laws of the past few years, reducing the bag-limit and preventing sale, will do much to conserve the remnant of the millions of geese which formerly spent the winter season in our State.

HAROLD C. BRYANT

No. 376

Brant

A. O. U. No. 173. **Branta bernicla bernicla** (Linnæus).

Description.—Similar to *B. b. nigricans*, but lighter in coloration; breast light ashy gray in abrupt contrast with black of jugulum, fading on lower belly into white of crissum, shading on sides to darker; patch of white streaks on sides of upper neck reduced, and not meeting fellow in front. Size of *B. b. nigricans*.

Nesting.— *Nest* and *Eggs:* Like those of next species.

Range of *Branta bernicla.*—Arctic coasts and islands of the Northern Hemisphere; in winter south to the shores of northern Europe, or rarely, the Mediterranean; Japan, Lower California, and North Carolina.

Range of *B. b. bernicla.*—Breeds in the highest Arctic regions of the Old World, in Greenland and the islands of the American Arctic, west to about Longitude 100°. In America, winters south regularly along the Atlantic Coast from Massachusetts to North Carolina, rarely to Florida, and occasionally at various interior points south to Louisiana. Casual in British Columbia and California.

Occurrence in California.—Casual, one positive record, of a bird killed on Arcata Bay, Humboldt County, Jan. 30, 1914 (Bryant).

Authorities.—**H. C. Bryant** (*Branta bernicla glaucogastra*), Condor, vol. xvi., 1914, p. 183 (Arcata Bay, Humboldt Co., Jan. 30, 1914, one spec.).

No. 376a Black Brant

A. O. U. No. 174. **Branta bernicla nigricans** (Lawrence).

Description.—*Adult:* Head and neck all around, and chest, glossy black, shading into sooty brown on back and wings, into sooty black or deep slate on underparts; remiges and tail black; an incomplete white collar on upper neck, broadest on sides, interrupted behind, and occasionally in front; upper tail-coverts and crissum white in strong contrast to surrounding parts. Bill and feet black; iris brown. *Immature:* Like adult but white collar indistinct or want ng; greater coverts and secondaries broadly tipped with white; sides and flanks brown'sh gray. Length of adult 558.8-736.6 (22.00-29.00); wing 323.9-342.9 (12.75-13.50); bill 32.5 (1.28); tarsus 60.9 (2.40).

Recognition Marks.—Standard of Brant size; black coloration with strong'y contrasting wh'te of upper tail-coverts (and crissum) distinctive.

Nesting.—Does not breed in California. *Nest:* A depression in ground, heavily lined with down. *Eggs:* 4 to 6; pale creamy white or ivory-yellow. Av. size 71.5 x 47 (2.82 x 1.85). *Season:* June–July; one brood.

Range of *B. b. nigricans.*—Western North America and eastern Asia. Breeds along the Arctic Coast and on adjacent islands. In America, breeds from about Longitude 100° West, to Point Barrow, Alaska, and northerly. Winters from coasts of British Columbia south to Scammons Lagoon, Lower California, and sparingly in the interior of Oregon, Nevada, and California. Casual on the Atlantic Coast.

Distribution in California.—Common migrant off shore and fairly common winter resident on Tomales and Humboldt bays; formerly much more abundant; wintering at various coastwise stations to San Diego Bay. Of rare occurrence in the interior.

Authorities—**Gambel** (*Bernicle brenta*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Belding*, Zoe, vol. iii., 1892, p. 101 (occurrence in Calif.; dates of arrival and departure, etc.).

"SEA" is a desirable addition to the common name of *Branta bernicla nigricans*, for the Black Sea Brant is never found, save by accident, away from salt water. Unlike all other California geese, it has no use for fallen wheat, and it keeps to the coast-line, both in winter and during migrations. Kelp-beds are favorite places of resort, and especially those which command the entrance of shallow bays where the sea wrack (*Zostera marina*) abounds. The Sea Brants come in with the tide and feed heartily on this grass, together, no doubt, with such incidental shell-fish as it may contain. They obtain this food both by tipping and diving, and when their appetites are satisfied, they gabble and float, or engage in friendly squabbles and mild pursuits. On the ebb of the tide they retire to the kelp-beds, or even to the open sea, to "raft" and doze, until hunger drives them in again. Occasionally the Sea Brant ventures ashore, especially on a low sand-spit where a thorough command of the middle distances may be had; for the Black Brant is exceedingly wary. Dire experience has taught him the fickleness of humankind, and when it comes to saving his skin, he is no "goose." While the very difficulty of the task may well appeal to an ardent sportsman, it is generally conceded that the pursuit of Black Brants no longer "pays." They are no such "great shakes," anyway. An exaggerated use of their long wings, as the birds get under way, gives the beholder the impression of great weight, an impression which is not sustained in the hand, when the bird is seen to be disappointingly light,—all feathers, in fact, as compared with the chunky Scoter, which does not equal it in extent of wing by a foot or more.

From the esthetic point of view, the Black Sea Brant makes two appeals to the lover of nature. The mellow notes, *cronk cronk cronk*, which the birds frequently emit whether in flight or at rest, have the authentic thrill of the wild. They may be madrone trees, or even somber redwoods, which form the immediate background, but when one hears mellow croaking, as of a thousand bull-frogs, welling up from the bay front, he is immediately transported to the Arctic tundra, and in imagina-

tion he sees those grim, romantic wastes, where such creatures as these may cackle and croak and charge about in unmolested abandon of happiness. *Cronk cronk cronk!* you splendid trumpeter of the North! It is before such a sound that the walls of our prosaic Jerichos fall down.

And there is the interest of their undulating flight, which Nelson has been at such pains to describe.[1] After noting that this species, unlike the *Branta canadensis* group, assumes a horizontal line in flight, the observer continues: "There is barely room enough between the individuals to allow a free wing-stroke. Thus ranged, the flock seems governed by a single impulse, which sends it gliding along parallel and close to the ground, then, apparently without any reason, careering thirty or forty yards overhead only to descend to its former level as suddenly as it was left; now it sways to one side and then to the other, while at short intervals swift undulations seem to run from one end of the line to the other. . . . A bird at either end of the flock rises or descends a few inches or several feet, as the case may be, and the movement is instantly followed in succession by every one of its companions till the extreme bird is reached and the entire flock is on the new level; or, it may be that a bird near the middle of the line changes its position, when the motion extends in two directions at once. These latter changes are made so regularly and with such rapidity that the distance between the birds does not appear altered in the least, while a motion exactly like a graceful undulation runs the length of the flock, lifting or depressing it to the level of the originator of the movement. These changes present to one's eye as the flocks approach, keeping close to the ground, the appearance of a series of regular and swift waving-motions such as pass along a pennant in a slight breeze."

A report that the fortunes of these birds are given over to the sole keeping of California[2] proves to be quite at variance with the facts. It may be true that the Black Sea Brant no longer visits the waters of Lower California in such numbers as formerly, but it is certain that the birds winter commonly on Puget Sound, the Gulf of Georgia, and in the coastal waters of British Columbia generally. Suckley, writing in the Fifties, says explicitly: "These Brant are extremely abundant about the Straits of Fuca in winter."[3] I have myself seen hundreds of them feeding on Semiahmoo Bay, near the 49th Parallel, in midwinter, and am under the impression that the bulk of the species will be found at that season north of the Columbia River. Nevertheless, it is true that certain sheltered bays of the Californian coast have always been favored places of resort, and immense numbers still repair in winter to Humboldt, Bodega, and

[1] "Habits of the Black Brant in the Vicinity of St. Michaels, Alaska," by E. W. Nelson, Bulletin of Nuttall Ornithological Club, Vol. VI., July, 1881, pp. 131-138.
[2] "The Game Birds of California" by Grinnell, Bryant and Storer (1918), p. 241.
[3] Cooper and Suckley, Rep. Pac. R. R. Surv., Vol. XII., pt. II. (1860), p. 352.

Tomales bays. Black Brants were formerly common at False Bay and San Diego Bay, as also at San Pedro; but the astute birds have long since resigned their claims upon these dangerous localities.

No. 377

Emperor Goose

A. O. U. No. 176. **Philacte canagica** (Sevastianoff).

Description.—*Adult:* General plumage bluish gray tinged with lilac, each feather sharply defined by a twinned crescent of black and white, producing a handsome scaled appearance; head and back of neck white, tinged with brownish yellow; throat and fore-neck, broadly, black; flight-feathers and their coverts slaty; tail white on exposed portions above, bluish dusky basally and below. Bill chiefly livid flesh-color; feet orange-yellow. *Young birds* are less conspicuously crescent-marked, and have head and neck dusky, speckled with white. Length of adult 635-711.2 (25.00-28.00); wing 381-431.8 (15.00-17.00); tail 127-152.4 (5.00-6.00); bill 38.1 (1.50); tarsus 76.2 (3.00).

Recognition Marks.—Brant size; fine scaled appearance; top and sides of head, and hind-neck, white, in sharp contrast with blackish of throat, distinctive; tail white.

Nesting.—Does not breed in California. *Nest:* On upper beach, in driftwood; or in salt marsh, of grasses, dead leaves, and down. *Eggs:* 3 to 8, usually 4; dull white to dull ivory-yellow, becoming dingy ochraceous with age. Av. size 80.8 x 52.8 (3.18 x 2.08). *Season:* June.

General Range.—Coasts and islands of Alaska and northwestern Siberia. Breeds on the Tschukchi Peninsula, on St. Lawrence Island, and on the Alaskan shore from Kotzebue Sound south to the mouth of the Kuskokwim. Winters from the Commander and Near islands east through the Aleutians to Sitka, straggling south to California.

Occurrence in California.—Rare winter visitor to the northern coast and western interior—about a dozen records.

Authorities.—C. H. Townsend, Auk, vol. iii., 1886, p. 491 (Humboldt Bay, winter of 1884); *Nelson,* Rep. Nat. Hist. Coll. Alaska, 1887, p. 90 (desc. nesting habits, nest, and eggs; Alaska); *H. C. Bryant,* Condor, vol. xvi., 1914, p. 92 (Sacramento and San Joaquin valleys, several specimens); *ibid.,* vol. xvii., 1917, p. 58 (Davis, Yolo Co.).

THE BOAST that all geese come to California is almost literally true so far as the western *Anseres* are concerned.[1] Ten species (and subspecies) is not a bad showing for a single state, and especially where only one species (*B. c. canadensis*) remains to breed. Of those which come south in late autumn the Emperor Goose is next to the rarest, and its occurrences, still to be numbered on the fingers and toes, are to be rated casual rather than regular. And curiously enough, this species, strictly maritime in its northern haunts, has often yielded to the lure of the great interior valley,

[1] The only exception among the Geese of the North Pacific being *Branta canadensis occidentalis,* which was for years erroneously attributed to our avifauna.

having been recorded from Colusa, Solano, and Stanislaus counties, and once as far south as Ingomar, in Merced.[1]

While undoubtedly a handsome bird, there is nothing imperial about either the appearance or the behavior of this "Emperor" Goose. Indeed, the name is said to have arisen from an ignorant confusion of the Russian designation *Sa sar'ka* (meaning a Guinea Hen, which the Goose does resemble, superficially, by reason of its scaled appearance) and *tsarskie*, Tsar-like, or "imperial." A fitter designation is Beach Goose, by which, in the appropriate vernacular, the bird is known both to the Aleuts and to the natives of Norton Sound.

Although many recent expeditions have brought back skins and eggs of this Bering Sea Beach Goose, our chief source of information regarding it is still the classical account of Nelson, published in 1887.[2] According to this author, the birds begin to venture back to the Yukon Delta region from their winter quarters in the Aleutians late in May, while the river is still under ice, and only exposed mudflats are available. The early comers are wary, but extensive additions to their numbers soon quicken their confidence.

"While passing from one feeding ground to another they commonly utter a deep, rather hoarse, and strident *clâ'-ha, clâ'-ha, clâ'-ha*, which is very different from the note of any other goose with which I am familiar. At times, though rarely, a flock may be brought within gunshot by imitating this note.

"Soon after their arrival they begin to pair, and are seen flying about in couples, keeping close to the ground, rarely flying over 20 or 30 yards high, and often barely keeping clear of the surface. The males are extremely jealous and pugnacious, never allowing one of their kind to approach within a number of yards without making an onslaught on the intruder. The same belligerent spirit is shown to the other species of geese should one of them chance to draw too near.

"While a pair is feeding the male keeps moving restlessly about, with eyes constantly on the alert, and at the first alarm they draw near together, and just before they take wing both utter a deep ringing *û-lûgh, û-lûgh*. As in the case of the call-note, this has a peculiar, deep hoarseness, impossible to describe.

"The first of June they began depositing their eggs on the flat, marshy islands bordering the sea. At low tide the broad mud-flats on the shore were thronged with them, and after feeding until satisfied they congregated on bars until the incoming water forced them to disperse. They nested most abundantly on the salt marshes adjacent to these feeding

[1] H. C. Bryant in Condor, Vol. XVI., 1914, p. 92.
[2] Report upon Natural History Collections made in Alaska between the years 1877 and 1881, by Edward W. Nelson, Washington, 1887, pp. 89-91.

grounds, and the eggs were often placed among fragments of drift-wood below the mark of the highest tides. Stray pairs were found nesting further inland on the marshy meadows, also frequented by the other species of geese, but on the salt flats, near tide water, the Emperor Geese held undisputed possession.

"On June 5 a female was found sitting upon her eggs on a little knoll, with a small fragment of bleached drift-wood within a few yards of her, and as she lay with extended neck, although the ground was almost bare, my Eskimo and I passed within a few feet of her on either side, without seeing her. We were about 20 steps beyond when she left the nest with a startled cry, thus drawing our notice. The three eggs were in full view when we turned. They rested in a depression with no sign of lining. The same ruse caused us to pass other nests, but the birds betrayed them each time by flying off with a loud outcry almost as soon as our backs were presented."

An enlightened policy of governmental protection will probably succeed in preserving this unique species. Testimony appears to differ, however, as to whether there has been an actual decrease in numbers within the past two decades. If we may judge from the following account, which is Nelson's, we may even believe that the advent of the white man has proved a blessing.

"The young are hatched the last of June or first of July, and the adult birds undergo the summer moult from the last of July to the middle of August. During this season the Eskimo set long lines of nets across the marshes and make drives of water-fowl which have moulted their quill feathers. The slaughter is enormous; the wasteful savages render it still worse by killing thousands of young birds which are entrapped, saying that they will thus prevent their being in the way during the next drive. Tens of thousands of geese are annually killed in the drives from the Yukon mouth south to the Kuskoquim. In fall, as these geese regain their wings, they gather from along the sea-coast and seek their food from place to place until the approach of winter sends them a few hundred miles south to the Aleutian Islands. The natives south of the Yukon use the skins of the Emperor Goose for making clothing, as they also use the skins of other water-fowl."

Truth to tell, our interest in this bird is purely esthetic. Its flesh is conceded to be both coarse and rank, "worse than the Snow Goose," which is surely "going some." There is also, according to Turner, a disgusting odor about this bird, which even skinning and freezing will only partially subdue.

1874

No. 378

Black-bellied Tree Duck

A. O. U. No. 177. **Dendrocygna autumnalis** (Linnæus).

Description.—*Adult:* General body plumage rich reddish brown (auburn); head and neck buffy brown, save on crown, which is auburn, and hind-neck, deep chestnut; posterior half of body black, shading on lower tail-coverts to pure white of distal portions; lining and edge of wing brownish black, the flight-feathers pure black; the superior and proximal portions of wing-coverts variously ochraceous, shading into gray and grayish buffy of inferior and distal portions. Bill and feet (drying) light. Length 508-609.6 (20.00-24.00); wing about 241.3 (9.50); bill 50.8 (2.00); tarsus 2.45 (62.2).

Recognition Marks.—Crow size; somewhat like *D. bicolor*, but black belly and wing extensively whitish, distinctive.

Nesting.—Not known to breed in California. *Nest:* A hollow in tree scantily lined with feathers and down. *Eggs:* 10-16; dull white or yellowish white. Av. size 54.5 x 39 (2.15 x 1.53); index 71.1. *Season:* Late April–July; two broods.

General Range.—Middle America from the valley of the Rio Grande in Texas to Panama. Casual in Arizona, California and Jamaica.

Occurrence in California.—Casual; one record—from Imperial County.

Authorities.—H. C. Bryant, Condor, vol. xvi., 1914, p. 94 (Imperial Valley, one spec.); *Phillips*, Nat. Hist. of the Ducks, vol. i., 1922, p. 157, pl. 11 (monogr.).

RANSACKING the markets used to be a favorite and by no means unfruitful pursuit on the part of the birdmen of San Francisco and Los Angeles. Now that the marketing of ducks and geese is no longer in vogue, we shall doubtless have to go further—and more healthily—afield for our "records." The last prize to fall into the ornithological clutches before the sale of game was abolished was this Black-bellied Tree Duck, a handsome male, which was discovered and rescued by Mr. Vernon Shepherd, a San Francisco taxidermist, from a lot shipped up in the fall of 1912 from an Imperial Valley point. Mr. H. C. Bryant discovered the taxidermist and the mounted specimen, and so clinched the record.

This duck was probably a fall wanderer, an adventurer from the South, who came unwittingly to spy out the land. If other such should find the land good—and were not shot at sunrise for their pains—we might expect a colonizing movement of Black-bellies to set in this direction, much after the fashion of *D. bicolor* at some earlier date. But what are the real chances of so exceptional and so notable a bird running the gauntlet of gun-fire which begins at Calexico and ends at Crescent City, 720 miles as the duck flies? It is precisely so that humanity has rewarded its own pioneers—the cross, the gibbet, or the stake—and of course eventual

canonization awaits those who break with established custom, or aspire to leadership. Behold it is written that all "valid" bird records shall be established in blood. First martyrdom and then the "crown" of official recognition.

D. autumnalis does not, so far as known, nest upon the ground, choosing rather the hollow of some large tree. Of its further characteristics Dr. Brewer has said:[1]

"This duck perches with facility on the branches of trees, and when in cornfields, upon the stalks, in order to reach the ears of corn. Large flocks spend the day on the bank of some secluded lagoon, densely bordered with woods or water-flags, also sitting among the branches of trees, not often feeding or stirring about during the day. When upon the wing this bird constantly utters its peculiar whistle of *pe-che-che-ne*, from which its native name is derived. Colonel Grayson noticed that it seldom alights in deep water, always preferring the shallow edges or the ground; the cause of this may be the fear of the numerous alligators that usually infest the lagoons."

No. 379

Fulvous Tree Duck

A. O. U. No. 178. **Dendrocygna bicolor** (Vieillot).

Description.—*Adults* (sexes alike): General color yellowish brown, deepening on crown to Prout's brown, lightening on chin and upper throat to cinnamon-buff; shading on breast through clay-color to sayal brown, or even russet on sides; wings, rump, and tail, chiefly black, the tawny element shading into black on back and scapulars by successive narrowing of tawny tips, thus presenting a scaled appearance; a black median line along the hind-neck and an indistinct zone of mingled dusky and buff in fine streaks around middle neck; lesser and middle wing-coverts chiefly rich chestnut, the flanks striped with buff bounded by dusky; the crissum and distal portion of upper tail-coverts light buff. Bill and feet grayish black. *Immature birds* are somewhat lighter below and have back less distinctly scaled by tawny. Length of adult male about 525 (20.67); wing 213.4 (8.40); bill 45.2 (1.78); tarsus 55.4 (2.18). Females average a little less.

Recognition Marks.—Crow size; tawny and black coloration; feet and legs relatively enormous, projecting far beyond end of tail in flight. No black on belly, as contrasted with *D. autumnalis*. Note a "squealing whistle."

Nesting.—*Nest:* A well built basket of wire-grass, sedges, or narrow-leafed cattails, on ground of marsh, or built up out of shallow water in shelter of reeds. No special lining, and presence of down accidental. Also occasionally nests in hollow trees (*fide* Emerson). *Eggs:* 12 to 16 (of one female); 28 to 32 of record (two or more females contributing); short ovate, dull white or yellowish white, with surface of a somewhat leathery consistency. Av. size 50.3-55.8 by 34.3-41.8 (1.98-2.20 by 1.35-1.65). *Season:* First week in June; also Apr. 28, May 5, 6, 13, and 14, 1900, F. S. Barnhart; one brood.

[1] Baird, Brewer and Ridgway, Water Birds of N. A., Vol. I. (1884), p. 483

General Range.—Discontinuous. Found in four widely separated regions: One,—southwestern United States and Mexico. Breeds very locally from central California and middle western Nevada, southern Mexico, and central Texas to Valley of Mexico and Michoacan; winters south to southern Mexico, or casually throughout its range; has wandered north to coast of Washington and British Columbia. Two,—South America, Chile, Argentina, southern Brazil, and Paraguay. Three,—Africa, from Kordofan and the valley of the Nile south to Nyasaland, Lake Ngami, and Madagascar. Four,—India south of the Himalayas, Burma, and Ceylon.

Distribution in California.—Common summer resident and breeder in the flooded areas surrounding Los Banos, Merced County; also breeds sparingly in tule marshes of Los Angeles County. Appears upon the seacoast during migrations (regularly at Santa Barbara, both in early May and late August), and has been noted as a wanderer at various interior points, notably, Marin County (Mailliard), Marysville (Belding), Owens Valley (A. K. Fisher). A few said to linger in winter, especially in the San Joaquin Valley.

Authorities.—Baird (*Dendrocygna fulva*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 770 (Ft. Tejon); *Barnhart*, Condor, vol. iii., 1901, p. 67 (Los Banos; changes in nesting habits); *Dickey and van Rossem*, Condor, vol. xxv., 1923, p. 39, figs. (Buena Vista Lake; desc. and photos of nest and eggs; habits, etc.); *Wetmore and Peters*, Proc. Biol. Soc. Wash., vol. xxxv., 1922, p. 42 (*Dendrocygna bicolor helva*, new subspecies; type locality, Unlucky Lake, San Diego Co.); *Phillips*, Natural History of the Ducks, vol. i., 1922, p. 128, pl. 12 (monogr.).

DENDROCYGNA BICOLOR! The sons of Adam are still wrestling with their distinguished ancestor's unfulfilled task of naming the birds. Some of them are doing very badly at it, too, as witness Swainson's designation of this group of birds as "Tree Swans" (δένδρον, a tree, and *cygnus*, a swan). *Bicolor*, too, recently foisted upon us by the "law of priority" in place of the highly appropriate *fulva*, is misleading and painful. The Two-colored Tree-Swan!

But if we are disposed to be critical, we may quarrel with the trivial name also. The bird is scarcely a duck, for it has long legs and a fashion of hanging its head in flight, which reminds us strikingly of a near-sighted goose. Moreover, only a very few of our fellow Californians will confess to having ever seen this bird up a tree. The bird with us is preëminently a marsh bird. We are at fault again. One of our Old World friends has done better in calling the bird a Whistling Duck; while a writer, an Indian ornithologist, has ventured the "Larger Whistling Teal." Behold, then, dear reader, this Larger Whistling Two-colored Swantealgooseduck of the marshes, and beholding, tremble!

Dendrocygna is an exotic, the something different, of the sportsman's world. Moreover, he is a great traveler. Starting originally, no doubt, somewhere in the East Indies, which are still the center of distribution for the genus, *fulva* (or *bicolor*) has now achieved the notoriety of four separate distribution centers, or permanent homes; viz., India, central Africa,

southern South America, and Mexico (with our own Southwestern States). The occupation of California by this species is very probably a comparatively recent matter. The first birds were noted in the Los Baños country, which has now become the recognized center of abundance in California, as late as 1895. "Accidental" occurrences have been noted from Washington (Gray's Harbor), and Vancouver Island, which goes to indicate that *D. bicolor* is still looking for worlds to conquer.

Be that as it may, the Fulvous Swamp Goose has made herself thoroughly at home in the flooded lands tributary to the Mendota project, where her egg-laying proclivities have become the nine days' wonder of the oölogist. The story is told,[1] on the authority of Mr. H. Wanzer, chief engineer for Miller and Lux, that the Fulvous Tree Duck, which "was first brought to his notice" near Los Baños in June, 1895, and which had become common by the season of 1898, was at the outset accustomed to

Taken near Santa Barbara FULVOUS TREE DUCKS AT SANDYLAND *Photo by the Author*

"colonize" or pool its nesting interests. The number of eggs found in caches, or casual hollows among the reeds, or on grassy islands, varied, according to report, from thirty to a hundred. In particular, Mr. Wanzer found such a cache on the 15th of June, 1896, in Camp 13 swamp, which

[1] By F. S. Barnhart, The Condor, Vol. III., May, 1901, p. 67.

Taken near Santa Barbara *Photo by the Author*

FULVOUS TREE DUCKS IN FLIGHT

contained 62 eggs. "The eggs were placed on a pile of dead grass which had drifted together about four inches above the water, and looked as if someone had emptied them carefully out of a basket, there being no attempt at nest building or concealment."

These statements raise a question not of veracity, which is unquestioned—but of emergency economy, of adjustment to new and untried conditions. Similar caches, or dump heaps, but of lesser proportions, are found today in these marshes—in addition to the sober and individual nests which contain from 12 to 16 eggs of the rightful owner. A nest which I found on the 30th of May, 1914, contained eight eggs. On the 1st day of June it held fourteen eggs, and on the 2nd, seventeen; but on the 4th, when it was due to have 23 eggs if three birds were contributing, it held nineteen instead, and was taken. In this case there was either (1) communal nesting of three pairs; or (2) a polygamous family with three wives; or, lastly, and most probably, two females, whose nests had just been destroyed by predatory mammals, found temporary asylum with a more fortunately placed sister. It is noteworthy in this instance that the owner or owners of these eggs assumed responsibility for the increased product. While at the 14-egg stage, the eggs had been disposed carelessly in two layers with three or four eggs on top; on the day following, the seventeen eggs were all in one layer, the nest in the meantime having been considerably built up and improved. On the 4th of June, however, at the 19-egg stage, the two extras lay on top and the nest had been apparently deserted, whether by reason of unwelcome additions or of unwelcome attentions could not be determined. I have been thus explicit because these cache nests of the Fulvous Tree Duck are the mystery of the swamps, and exact observations are few or wanting.

1879

The Tree Ducks, known locally as "squealers," have a light high cackling or whistling note, *chi peéw*, which one might sooner expect of a plover, or even a flycatcher. This note is uttered freely upon arising, but is rarely used, I believe, save in flight or under stress of alarm.

While the birds are essentially fresh-water birds, they are by no means unknown at the seashore during migrations. The group of nine birds shown on page 1878 was photographed on the sea-beach near Carpinteria. Having just arrived from the south, on the 2nd of May, 1912, they first stood at

Taken near Los Banos *Photo by the Author*

NEST AND EGGS OF FULVOUS TREE DUCK, UNDISTURBED

attention, dutifully silent, like well-trained soldiers; then seeing only a harmless admirer, they tucked heads under wings and fell asleep forthwith. They made a handsome appearance under a full sun, like statuettes of burnished bronze set in a row, while their slender legs, of steel rather than bronze, supported the aloofness of their distinguished beauty. In a setting of green marsh grass they are no less distinguished; but the outburst of treble cackling which marks their flight produces a ludicrous effect, like a chorus of fat tenors.

Although there is a suspicion registered above that Tree Duck morals

are not above reproach, there are enough indubitably wedded pairs to keep up the traditions of home. Nests are built either in the heavy grass of damp meadows or in the area of dwarf sedge which borders the marshes, or in the depths of the cat-tails themselves. If the ground is dry, a mere depression suffices; but if not, the bird is capable of weaving a sturdy basket, whether of wire-grass or of cat-tails, and this will lift the eggs clear of the water by a foot or more. The bird does not strip herself of down, as do her lavish sisters, but she takes pains to break down the surrounding grass or reeds, so that her eggs will be sheltered from the searching gaze, and

Taken near Los Banos *Photo by the Author*

n/19 FULVOUS TREE DUCK

THE NEST IS THE ONE PREVIOUSLY SHOWN

she from the sun. A little runway of broken reeds or trodden-down grasses leads from this retreat; and as the bird flushes at 25 or 30 feet, the finding of the nest is not always an easy matter. The bird, moreover, is

capable of a stoical fortitude in remaining away from her nest while it is under inspection; and too much "monkeying" will entail desertion.

The eggs of the Fulvous Tree Duck are quite unlike those of any other American species (save, of course, *D. autumnalis*). They are of a dingy yellowish white color with a dull leathery, but not an oily, surface, a little rounder than ordinary ducks' eggs, and decidedly small for the size of the bird. Because they are so unmistakable, we are able to trace the foundlings in many another duck's nest besides those of her own species. Thus, Ruddies and Red-heads are especially apt to be imposed upon by these easy-going Orientals.

Whether, indeed, the Fulvous Tree Duck nests otherwise than upon the ground (or in the water) in California, we do not know. Mr. Emerson's note,[1] often quoted, throws a little light upon the subject, but its inference has never been confirmed: "On May 23, 1882, while collecting with Wm. C. Flint at Lillie's ranch near Tulare Lake, I noticed a Fulvous Tree Duck sitting in the entrance hole of a large white oak near one of the ditches, but it was out of the question to reach it. Again, on May 26, another was located sitting on the edge of a hole high up in a white oak." *D. javanica*, a closely related species found in India, is known to nest not only in hollow trees *and* on the ground, but also in old nests of herons, crows or kites. *D. arcuata* and *D. eytoni* of Australia nest only upon the ground and often at considerable distances from the water.

Whatever their parentage, the little Whistling Two-colored Tealduck-swangooses manage to get their growth and escape to the Southland before the fall shooting starts in. As a consequence of its comparative immunity from gun-fire, the species may be slowly gaining in numbers. But Los Baños, at least, is infested by coons, weasels, minks, skunks, coyotes and, worst of all, wild hogs.

No. 380

Whistling Swan

A. O. U. No. 180. **Olor columbianus** (Ord).

Description.—*Adult:* Entire plumage pure white, the head sometimes tinged with rusty; bill and lores black, the latter usually with a distinct yellow spot near eye; feet and legs black. *Immature:* Plumage ashy gray, the head and neck tinged with brownish; bill and feet light. Length about 1371.6 (54.00); extent seven feet; wing 539.8 (21.25); tail 215.9 (8.50); bill 101.6 (4.00); tarsus 99.1 (3.90); middle toe and claw 137.2 (5.40).

[1] See Condor, Vol. I., p. 11, in article by A. M. Shields.

Recognition Marks.—Brant size; pure white plumage; long neck; small yellow spot on lores distinctive for this species.

Nesting.—Does not breed in California. *Nest:* Near water, on the ground or upon loose heap of sticks and trash, lined with mosses, grass, and down. *Eggs:* 2-7; sordid white. Av. size 107.2 x 68.6 (4.22 x 2.70). *Season:* April–June; one brood.

General Range.—North America. Breeds in northern Alaska from the Alaska Peninsula and from northern Mackenzie and northern Keewatin north over the Arctic islands to about Latitude 74°. Winters on the Pacific Coast from British Columbia to southern California; on the Atlantic Coast from Delaware to South Carolina, rarely from Massachusetts to Florida; and in the interior from Lake Erie and southern Illinois to Louisiana and Texas; casual in northern Mexico and Bermuda. Accidental in Great Britain.

Distribution in California.—Formerly abundant; now rare winter resident in suitable localities, chiefly lakes and reservoirs, south to San Diego County (Sweetwater Reservoir, Stephens). A notable increase recorded in the season of 1919-20, but not sustained in the succeeding season.

Authorities.—Gambel (*Cygnus americanus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 225 (Calif.); *Torrey*, Field-days in Calif., 1913, p. 80 (Santa Barbara, winter; habits, etc.); *Willett*, Condor, vol. xxi., 1919, p. 126 (Warner Springs, San Diego Co., winter).

FOR PRACTICAL purposes the American occupation of California dates back to "Forty-nine." The Argonauts not only "put California on the map," but their arrival brought about profound changes in the complexion of animal life. The Indian with his snares of thong and his arrows tipped with obsidian had only been a part of the order of nature. His depredations, so far as the birds were concerned, were not to be compared with those of foxes or weasels or falcons. To be sure, the native sampled a Swan now and then for food; but it never occurred to him, a simple-hearted child of nature, that it would be sport to kill these noble birds just for the fun of killing. That remained for the White Man, the crown and exponent of civilization, the hot and heedless heir of the ages. With the same ruthless heel that has trodden down the Red Man, the noblest, the most beautiful, the most exalted examples of the creative handiwork, fit objects of enlightened human interest, have been crushed to earth and almost or quite exterminated.

The case of the Wild Swan is one of the saddest in American annals. Majestic as well as graceful, of noble proportions as well as harmless conduct, world-wide symbol of purity and charm, the stately beauty of the Swan was altogether such as to excite admiration and to deserve chivalrous treatment. But what do we see instead? Extravagant praises of the quality of Swan's flesh! instructions for hanging or garnishing or flavoring with herbs; or worse than that, records of slaughter—slaughter gigantic, wanton, insatiable, and now alas! irremediable. We all know the out-

1883

come: The appearance of a Swan in the wild state is now a nine days' wonder, something to cause a ripple of excitement through the countryside, and something to be reported forthwith to "The Auk" or "The Condor."

We are, we Anglo-Saxons, and especially we Anglo-hispano-italo-nippono Californians, an easy-going, law-despising and indolently selfish bunch. We have had game laws for a generation, and those now written on the statute book are as beautiful as ink can make them. We have even succeeded in shutting up several stable doors after the horses have been stolen; but our machinery for law enforcement is a jest. As in the days of Samson, everybody does that which is right in his own eyes, and above all —oh, above everything—we do not interfere with anything which our neighbor may see fit to do. Is he slaughtering birds in plain violation of the statutes? He is justly incensed if you remind him of the fact; and as for causing his arrest, who would venture to do anything so impolite!

Take, for example, the case of the Wild Swan. The law says explicitly that the bird shall not under any circumstances be killed. And yet we read in a recent work, "The Game Birds of California," as follows: " 'Swans were common winter visitors on Humboldt Bay up to three years ago when a flock of about forty birds lingered here until all but about six or eight were shot by market hunters. I saw eighteen of these birds in the hands of a local taxidermist, all of which were shot within a period of less than two weeks. He had bought them cheaply, expecting to mount them, and sell them at a fancy price, but they were poorly mounted and most of them went to ruin right in his shop' (C. I. Clay, in letter of March 16, 1912). It is to be observed that all of these birds were killed illegally."

There you have it! These noble birds were slaughtered under circumstances glaringly apparent to a community of ten thousand people and yet *nothing was done about it.* Indeed, if we mistake not, the man who bought up this treasure trove still carries a license to collect "for scientific purposes." But Eureka is no worse in this respect than forty other communities. As director of a museum the writer has been repeatedly solicited to purchase contraband material, a wounded eagle or the like, and he is rated "queer" because of the irresistible outbursts of indignation which ensue. Pardon this weakness, dear Californians. It's—it's congenital!

During migrations the Swans move in small flocks, forming a "flying wedge," or V-shaped figure, with some trusted patriarch in the lead. Their flight is exceedingly swift, being estimated by competent observers at one hundred miles per hour—probably twice that of the geese. For all they are so powerful on the wing, they rise from the water rather reluctantly, and prefer, if there is room enough, to distance pursuit by swimming. Because the neck of the Swan is so long and hung at the water-line, the

bird can explore the bottom freely in shallow waters in its search for roots and mollusks, without making any ungainly motions with the body. Indeed, there is a peculiar disconnectedness between the operations of the Swan proper and its far-reaching head,—as though here were a white boat serenely floating at anchor, from the bow of which now and then a diver is sent down to grapple for hidden treasure. All the bird's motions above water are graceful enough, except in case of anxious inquiry, when the neck is stretched to its utmost, perpendicularly, as it pauses in dread expectancy; and the bird looks like a white eighth-note of the musical scale, set upon a staff of widening ripples. Ashore, its gait is a rather ungainly waddle, the foot being folded and lifted "unco high" at every step.

The Whistling Swan is a noisy bird at best. A flock of them exhibit great individual variations of notes, and they can create a chorus which is mildly worse than that of a political jollification meeting. The bass horns, of tin rather than brass, are blown by the old fellows, while the varied notes which seem to come from clarionets are really due to cygnets. The birds set up a great outcry when they have done or are about to do anything important, as when preparing for the flight northward, or when welcoming a company of their fellows to the feeding grounds.

The Whistling Swan is not known to breed south of Alaska and all records of the nesting of "wild swans" within the limits of the United States are now believed to refer to *Olor buccinator*. The nest is always made near water, and consists of a large accumulation of grass, leaves, tule stems, and trash, with a plentiful lining of down from the bird's breast. From two to seven large yellowish white eggs are laid late in May, and the female is obliged to cover them for a matter of forty days. Both parents are exceedingly zealous in defense of their young, and a sitting Swan will sooner fly at an intruder in a passion than away from him in fear. A stroke of a Swan's wing has been known to break a poacher's leg. Would that the bird's indignation had similar power at longer range!

No fitter emblem of purity and grace will ever be found than this matchless daughter of the wilderness, the American Swan. If we are impelled to admire the stately beauty of the domestic bird, as it moves about upon some narrow duck pond of our own contriving, how much more shall we yield tribute of admiration to this native princess, spotless and untamed! Whether seen as a garniture of some inland mere, or descried aloft as a bank of winged snow, no vision of nature will ever thrill us with a deeper romance than does the wild swan. And if we forfeit that vision to greed or blood-lust, no pachycephalic crime will be greater and no regret of future generations more poignant.

1885

No. 381

Trumpeter Swan

A. O. U. No. 181. **Olor buccinator** (Richardson).

Description.—Similar to preceding species, but larger; bill and lores entirely black. Length 1524-1676.4 (60.00-66.00); extent about 8 feet; wing 609.6 (24.00); tail 228.6 (9.00); bill 114.3 (4.50); tarsus 111.8 (4.40); middle toe and claw 152.4 (6.00).

Recognition Marks.—As in preceding species. Distinguished from it by absence of yellow on lore, and by nostril in basal half of bill.

Nesting.—Like that of preceding species, but eggs a little larger. Av. size 111.76 x 66 (4.40 x 2.60).

General Range.—Interior and western North America. Formerly bred from Indiana, Missouri, Nebraska, and Montana, north to the Arctic Coast, but not recently reported as a breeder below Latitude 61. Has wintered from British Columbia south to southern California, and from southern Indiana to Texas. Now verging upon extinction, and limits not definable.

Occurrence in California.—Formerly of regular occurrence south through the central valleys and in the San Diegan district. No authentic record since 1898 (Grinnell) and evidently near extinction.

Authorities.—**Newberry** (*Cygnus buccinator*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 100 (Calif.); *Coale*, Auk, vol. xxxii., 1915, p. 82, pls. (present status; specimens extant; etc.); *Fleming*, Condor, vol. xxi., 1919, p. 124 (crit.; desc. of a Calif.-taken spec., identity uncertain).

EXTERMINATED by gun-fire! This at least seems to be the consensus of present opinion.[1]

Such being the case, the task of describing the habits, range, etc., of the Trumpeter Swan is a work of supererogation, analogous to that of collecting the traditions regarding the Labrador Duck, the Dodo, etc. But because the crime, albeit recent, was accomplished before the days of complete moral self-consciousness, we will endeavor to assemble such pitiful scraps of information as we possess regarding the deceased.

The Trumpeter Swan, long confused with its ally, *O. columbianus*, was first described as a distinct species in 1831.[2] Its chief claim to distinction lay in the extraordinary development of voice which characterized the male bird, and which had necessitated the provision of a special apparatus. Those who abhor the idea of directive evolution, that is, the working of the "*elan vital*" toward preconceived ends, must explain how either accidental

[1]Henry K. Coale in The Auk (Vol. XXXII., Jan., 1915, pp. 82-90) says: "At the meeting of the American Ornithologists Union held in New York City, in the fall of 1913, a number of the members were discussing the rarity of the Trumpeter Swan, the general opinion being that this magnificent bird was nearing extinction, and would soon disappear forever."

The Game Birds of California by Grinnell, Bryant and Storer (1918), p. 254: "It [the Trumpeter Swan] claims additional interest in that it must be numbered with those birds which have been exterminated within the lifetime of most of the citizens of the State."

[2]By William Swainson and John Richardson in Fauna Boreali Americana.

increments of variation or increments of advantage through use enabled this bird's trachea to provide for itself a bony tunnel throughout the entire length of the sternum, or breast-bone, to the sole end that its length (and consequent lower register of the sound emitted) might be increased. Not content with this ingenious utilization of extra space, "Nature" had begun to develop a capacious hump on the inside of this bird's breast-bone (I have always contended that the Almighty has a sense of humor!), a bony archway which protected, so far, the dawning intentions of this enterprising trachea to provide itself with an additional convolution—at the expense of lungs or gizzard or whatever other organ might stand in the way of musical progress. The result achieved when this promising career was stopped was already noteworthy. The Trumpeter blew an authentic trombone so stertorous that at least one observer[1] wished the performer dead. The Whistling Swan's note, while by no means a whistle, was higher-pitched and much lighter, a toy trumpet by comparison.

This decided difference in voice, if we omit an average increase in size observable in *buccinator*, was the only field distinction; that is, the only one observable at reasonably long range. As a consequence, there was such endless confusion of the two species in the popular mind that we cannot even now unravel the records, nor write a separate life history of *buccinator* further than to define its range.

We know now that *buccinator* was the bird of the great interior, ranging between Hudson Bay and the Rocky Mountains, and breeding chiefly, but by no means exclusively, north of the Sixtieth Parallel. It was slaughtered in immense numbers by the minions of the Hudson Bay Company, and the slaughter ceased only when it had ceased to be productive. South of the 49th Parallel, the breeding of this bird was more or less desultory; but since we have records from Indiana, Iowa, Minnesota, Montana, Idaho, and probably Washington,[2] there is fair reason to suppose that it also bred within the limits of California. Goose Lake or the lakes of Surprise Valley (now evaporated) present every analogy to conditions a thousand miles north. The ornithologist thrills to think what might have been witnessed in the way of bird life in Modoc County, say a hundred years ago! Ducks of fourteen species, Canada Geese, Sandhill Cranes, herons of six species, gulls and terns of five species, cormorants, White Pelicans, four grebes, and shore-birds of nine species,—these were pleasant certainties of that elder day, with such a rarity as the Trumpeter Swan by no means impossible.

Regarding the occurrence of this bird in California, only the most imperfect data are at hand. There is, apparently, no California-taken

[1]Hearne: *Auct.* Coale, Auk, 1915, p. 83.
[2]The "near records" given by "The Birds o fWashington" (1909), p. 840, should undoubtedly be ascribed to this species instead of *O. columbianus.*

specimen in existence. Yet in the face of the emphatic testimony to the former abundance of the bird farther north, as upon the Columbia River, we hardly care to question the fact of its earlier presence in California. At that I am very distrustful of the earlier records. The "fathers" were apt to make blanket claims upon everything known to exist. Moreover, some of them suffered from eastern editors, as witness the inclusion of *five* species of Leucosticte in "The Ornithology of California," edited by S. F. Baird, from the manuscript and notes of J. S. Cooper. No; the fathers weren't overlooking anything. We ourselves find only one species.

No. 382

Great Blue Heron

No. 382a California Great Blue Heron

A. O. U. No. 194. **Ardea herodias hyperonca** Oberholser.

Synonyms.—"Blue Crane." Kelp Heron.

Description.—*Adult:* Crown, sides of head, throat, and middle of chest, narrowly, white; occiput and top of head on sides glossy black, the feathers elongated into an occipital crest; neck pale purplish brown, a mesial stripe in front black, white, and ochraceous; feathers of side of neck in front much lengthened, whitish and purplish brown; sides of breast, and belly, broadly streaked with black and white in about equal proportions; edge of wing, including the bend, and thighs, cinnamon-rufous; lower tail-coverts white; above nearly uniform slaty blue; the scapulars lanceolate, sometimes varied with bluish white; black shoulder tufts of plumulaceous feathers arching over bend of folded wing, and continuous with black on sides of the breast; wing-quills, lining of the wings, and sides bright plumbeous; lores blue. Upper mandible yellowish-olive, blackening on ridge; lower mandible yellow; feet and legs black. The occipital crest of the male contains two much elongated, filamentous, deciduous feathers during the breeding season. *Immature:* Similar, but top of head entirely black; without specially colored or lengthened feathers on neck, sides of breast, or scapulars; upperparts inclined to fuscous; underparts with slaty and ochraceous in addition to black and white; feathers on bend of wing and thighs lighter, or vinaceous-rufous. *Young in first plumage:* Brownish-fuscous above, streaked and spotted with buffy and whitish, narrowly on head and neck; below white, streaked with fuscous and buffy. Juvenile plumages vary interminably within these general limits, but the bird is unmistakable. Length about 1270 (50.00); extent about 1905 (75.00). Male: wing 497 (19.57); tail 186.5 (7.35); bill 144.6 (5.70); depth at base 29.5 (1.16); tarsus 188.3 (7.415). Female: wing 473 (18.62); bill 137.7 (5.42); depth 26.5 (1.04); tarsus 170.3 (6.705) (after Oberholser).

Recognition Marks.—Eagle size; great size and elongated proportions, with bluish cast of plumage, unmistakable.

Nesting.—A bulky platform of sticks placed high in trees or, less commonly, on ground in marsh. *Eggs:* 3 or 4, rarely 5; elliptical or ovate elliptical; light bluish green (glaucous green to deep lichen green), unmarked. Av. size 65.3 x 45 (2.57 x 1.77); index 68.9. *Season:* April; one brood.

Range of *Ardea herodias.*—North America and northern South America, breeding north to southeastern Alaska, Saskatchewan, and Hudson Bay, south to Florida, northern Texas, and Lower California; wintering south over Mexico and the West Indies to Venezuela and Colombia.

Range of *A. h. hyperonca.*—Resident from Transition zone to sea-level on the Pacific Coast slope from western Oregon south to San Diego, California.

Distribution in California.—Common resident throughout the State west of the desert divide and east of the Sierras, at least north of Plumas County. Found upon the Santa Barbara Islands and even (accidental?) upon the Farallons.

Authorities.—Gambel (*Ardea herodias*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 222 (Calif.); *Miller*, Condor, vol. xii., 1910, p. 13 (fossil); *Oberholser*, Proc. U. S. Nat. Mus., vol. 43, 1912, p. 550 (syst.; *Ardea herodias hyperonca*, new subspecies; type locality, Baird, Calif.); *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 45, 1913, p. 37, map (distr.); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 21 (San Joaquin Valley, breeding habits, etc.); *Wetmore*, Condor, vol. xviii., 1916, p. 112 (speed of flight); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 43 (s. Calif. ids.; crit., meas., etc.).

No. 382b Pallid Great Blue Heron

A. O. U. No. 194, part. **Ardea herodias treganzai** Court.

Synonyms.—Western Great Blue Heron. Desert Great Blue Heron. Great Basin Heron. Treganza Heron.

Description.—*Adult:* Similar to *Ardea herodias hyperonca*, but upperparts and neck paler; in size decidedly less. Male: wing 471.7 (18.57); tail 179.9 (7.08); bill 144.3 (5.68); depth at base 28 (1.10); tarsus 170.5 (6.71). Female: wing 455.5 (17.93); tail 174.2 (6.86); bill 137.2 (5.40); depth at base 26.1 (1.03); tarsus 170.5 (6.71).

Nesting.—Much as in preceding form.

Range of *A. h. treganzai.*—Western United States from the eastern base of the Cascade-Sierra Mountain system east to the eastern bases of the Rocky Mountains, and central western Texas south to southwestern Mexico. Winters from Texas and Arizona south to Colima.

Distribution in California.—Common resident in suitable localities east of the desert divide; notably in the Salton Sink and the valley of the Colorado River, north, probably to Mono Lake, and possibly in the extreme east to Surprise Valley.

Authorities.—Coues (*Ardea herodias*), Ibis, 1866, p. 263 (Colorado River); *Oberholser*, Proc. U. S. Nat. Mus., vol. 43, 1912, p. 545 (syst.; monogr.); *Grinnell*, Condor, vol. x., 1908, p. 190, fig. (Salton Sea, breeding); *ibid.*, Univ. Calif. Pub. Zool., vol. xii., 1914, p. 116 (Colo. Valley; nesting habits; syst.; meas.; etc.); *Wetmore*, Condor, vol. xxii., 1920, p. 168, figs. (function of powder downs).

AS A PICTURESQUE feature of the landscape or, oftener, the waterscape, the Heron has no rival. Whether standing motionless upon the flats, with bills elevated, or depressed, according as men or fish are the objects of current moment, or whether flapping slowly across the scene, they lend just that touch of sedate life which the artistic eye requires. The Japanese have nowhere shown clearer credentials of authority in

art than in their handling of the heron motif in decorative work. When the birds descend, it is as though heaven had responded to the mute incense of Fujiyama and gave gifts to men. When the birds fly, it is because the folly of men has provoked the gods, and Jimmu Tenno frowns from the clouds. And when the birds stand placid by a placid pool, what more fitting symbol of the ancient Nippon, where tomorrow was like yesterday.

Taken near Santa Barbara *Photo by the Author*

A STARTLED FISHERMAN

The Great Blue Heron is, with us, the largest of its kind; and while not exactly graceful on the one hand, nor majestic on the other, it presents that peculiar combination of the two which we are pleased to call picturesque. While standing knee-deep in the water of some pond or stream, awaiting its customary prey of minnows or frogs, it may remain for an hour as motionless as a bronze statue; then with a movement like lightning the head is drawn back and suddenly shot downward, and a wriggling fish is transfixed on the spear-like beak. A deft toss of the head puts the fish up and transfers it to the inside, and the bird moves with quiet, measured step to another station, or else rises heavily, with slow flaps, into the air. In full flight, the Heron stretches its legs to the fullest extent behind; and the neck, especially when the bird is sailing, is carried like the letter S or Z, so that the lower part is brought parallel to the long bill, and the bird looks like a strato-cumulus cloud floating in space.

Besides frequenting tide-flats, lakes, swamps, and all inland waterways, the Great Blue Heron in California assumes two special roles, which invariably serve to impress the newcomer. The first is dry-land "fishing" and the second is kelp fishing. As the season advances and many of the customary water courses dry up, the Heron, instead of fleeing to moister realms, resorts to the pastures and the dryest of uplands, and there devotes himself to the extermination of mice, moles, and gophers, and even

young ground squirrels. According to Mr. John G. Tyler, of Fresno, this species is known in the San Joaquin Valley as the Gopher Crane, and is there accorded a fairly tolerant protection by the farmers because of its distinguished services. He declares it to be one of the best gopher-destroyers in existence, and says:[1] "It is no uncommon sight to see a heron standing motionless for hours at a time in an alfalfa field waiting for a gopher to make its appearance. Small fish, frogs, and probably lizards, if they are obtainable, are eaten, and on many occasions herons have been observed in pairs on the dry barren hillsides along the San Joaquin River busily engaged in catching grasshoppers."

We dwellers by the southern sea oftenest descry this bird as a lone watcher far out in the kelp-beds, and we are moved to call him the Kelp Heron. The same tactics of tireless patience and lightning speed evidently avail here to secure for him an abundant harvest of smelts and shrimps, for the bird will stand by the hour on a sinking raft of kelp-fronds, though it leave him submerged to the belly. His sea-legs are, therefore, considering their great length, rather the best on earth, for their owner has to maintain his balance in the face of unceasing motion, and so nicely, that suspicious little fishes shall not be put to flight by a single false motion. Small marvel, then, that we should have seen a Heron, just off-shore near Santa Barbara, riding a piece of driftwood not over seven feet in length, and so light that the weight of the bird kept it nearly submerged. The tide was going out, so that we did not have the satisfaction of seeing the majestic wader encounter the very breakers, but there was a current which bore the living statue along briskly in a line parallel with the shore, and in the trough of some very considerable swells. We watched his progress for perhaps a hundred yards and saw scarcely a sign of effort, only ease and mastery. No doubt the Kelp Heron could give a creditable slack-wire performance. I have seen one—on Lake Erie it was—stand on one edge of a fish-net and, reaching down to the water some two feet below, select an underweight whitefish.

In contrast with this dexterity of balance is the difficulty which the bird experiences in effecting a landing. They can fly all right, as some aviators can, but the trouble comes in lighting. It is amusing on a windy day to see these long-legged creatures trying to establish connections with a coveted perch, such as the rail of a deserted wharf. Facing the wind, some of the birds will fly past their mark until they feel their dangling feet engage the timber, and then allow the wind to right them; while others will thrust the feet well forward and critically observe the

[1] Pacific Coast Avifauna, No. 9, p. 21.

moment of contact, after which they struggle into position with great flappings.

The Great Blue Heron may have his limitations, but he is no sluggard nor licensed butt of ridicule. The late Mr. Oscar Nuhn, of Seattle, recounted to me a passage to which he was eye witness, between a Great Blue Heron and a Kingfisher. It seems that the heron was standing on a log which jutted over a stream, and was industriously minding his own business. But the presence of a strange fisherman on his preserves excited the jealousy of the Kingfisher. The little gendarme made repeated noisy passes at the heron and, finally, emboldened by his own

Taken in San Mateo County *Photo by the Author*

A GROUND NEST OF THE CALIFORNIA GREAT BLUE HERON

racket, charged full at the heron's head. Quick as thought the heron's bill shot out, and the little king was neatly spitted. The impact of the charge was such that the heron was knocked into the water; but he quickly recovered, and the land had rest for a season.

During the breeding season these large birds are gregarious. Their immense nests—as big as a washtub, Finley says—are by no means to

be concealed, so the colony seeks protection in the depths of a tule swamp; or else resorts to the heights of forest trees difficult or impossible of access. Sycamore trees are favorites in central and southern California, while firs or redwoods are utilized in the northwestern counties. The larger trees are likely to be the most heavily tenanted; and sometimes a single tree, rearing aloft from the depths of a not easily accessible swamp, will be crowded with nests.

Taken in California *Photo by Finley and Bohlman*

A "FROZEN" HERON

Mr. William L. Finley, in company with his *alter ego*, Mr. Herman T. Bohlman, visited one of our largest colonies near San Francisco in 1904, and found[1] it in an unusually prosperous condition. The Great Blues were nesting in company with the Black-crowned Night Herons, whose untidy bunches of sticks were relegated to the extremities of the sycamore branches, or to the lower levels of the surrounding willows and alders. A great sycamore seven feet through at the base was the center of activity in the heron village. "The monster was a hundred and twenty feet high and had a spread of limbs equal to its height. In this single tree we counted forty-one blue heron nests and twenty-eight night heron nests: sixty-nine nests in one tree. In another tree were seventeen of the larger nests and twenty-eight of the smaller." These gentlemen estimated 700 nests as the equipment of the entire colony, with those of the smaller birds preponderating; and from a single elevated station counted over 400 eggs in sight at once.

Since the nests in this mild climate contain eggs by the 25th of March or the 1st of April, a visit should be paid to a heronry about the first or second week in May, if one would experience the most striking sensations. In the absence of the old birds, the youngsters, awkward,

[1] Condor, Vol. XIII., March, 1906, pp. 35-40.

Taken in California *Photo by H. T. Bohlman and W. L. Finley*

A TREETOP COLONY

scrawny, ill-favored little brutes that they are, spend most of their time squabbling and trying to push each other out of the nest. There is with most herons a considerable disparity of ages, and consequently of sizes, in the brood. The runt gets trampled or smothered in the early days, and one or more decaying carcasses of younger sons are a familiar enough component in the lining of a heron's nest. Now and then one of a contentious brood succeeds in toppling a brother off the platform and down the long abyss; but oftenest the pursued one escapes along the branch; or, if he falls, catches on a limb below, and scrambles back to safety, "tooth" and toe-nail. If he does fall to the ground, it is all day with him, for no matter what the state of his skin upon arrival, the parent birds never trouble to look him up.

But however scattered the young may be between whiles, the approach of the parent bird is a signal for all to gather. Upon alighting, the old bird first indulges a pensive moment, like a cow which is expecting another order of grass sent up from the proventriculum, after which she suddenly jabs her bill down the neck of the nearest squawker and dispenses sweet nourishment from her secret store. This she does with each child in turn till all are fed.

Fishing is necessarily a precarious business, involving long hours and more or less night work. The chicks suffer somewhat from exposure, no doubt, and the burning sun takes toll of the weaklings. Left alone, the babes console themselves with a low, lonesome cluck; but whenever the old birds are about, the older squabs keep up a loud cackling, not unlike that of Guinea hens, less shrill, perhaps, but of immensely greater volume. The parents, too, make an astonishing amount of noise, roaring at times like caged lions. This bellowing of the heron, as rendered at home, or as produced when frightened at close quarters is, without

exaggeration, the most soul-emptying succession of expletives in the North American bird language.

But all this insight into the domestic economy of the Heron must be obtained *incog.* Once you are recognized in the undergrowth below as a dreaded human, a great hush falls upon the colony. The anxious parents shrink until every feather seems glued to their persons, full length, and if possible they slink away. The clamoring youngsters, standing full height in their nests, at a signal from an adult turn to stone. After this they sink down into the nest, and so out of sight, by a movement as insensible as that of the hands of a clock.

Bethinking myself of this ruse, I was once able to save a situation and turn the tables neatly upon a heron,—the subject of the portrait on page 1890. I had suddenly thrust my head up over a sand-dune ridge to reconnoiter, and spied this heron, not forty feet away, fishing by the lagoon. He spotted me instantly; but instead of "ducking," I began to sink "by a movement as insensible," etc. This graduated disappearance served perfectly to allay the bird's fears, for he was quite unprepared to see me five minutes later, camera leveled and cocked, around the end of the ridge. An instant of strained apprehension, and he was mine—photographically speaking.

According to Mr. Chase W. Littlejohn, a large colony of these herons once occupied the heights of a tall row of eucalyptus trees near Redwood City. In spite of the forbidding aspect of this heavenly redoubt, the *furor oölogicus* impelled many a valiant youth year after year to storm these egg-laden heights. Finally, in the spring of 1900, the birds gave up and disappeared from the eucalyptus trees. It was not till the spring of 1902 that Mr. Littlejohn found them established, a mile or so from anywhere and six miles from anywhere in particular, in the open saline marsh bordering on San Francisco Bay. Their only cover was obscurity, for the salicornia beds are not half a heron's height. Here Messrs. Carriger and Pemberton found them, some fifty pairs, in 1903. And here I studied them, now reduced to thirty-two pairs, in company with Mr. Littlejohn, in 1911.

Arrived upon the ground, nearly spent with lugging cameras, we found great, hollow, half-spheres (or so they seemed with their upturned edges) of slender sticks, resting on the ground. The eucalyptus withes which composed the nests had been brought from a distance not less than six or eight miles. The colony was quite scattering and the nests in the most populous portion were never less than eight or ten feet apart. Although, at best, there was little protection of bush or sedge, the nesting platforms were always placed by the side of a tide channel, where the general vegetation was heaviest, and they were not conspicuous at over

forty yards. The birds themselves were exceedingly wary, standing about in the offing like anxious sentinels, and scarcely venturing within rifle range, let alone camera range.

No one claims that this "blue crane" is really game, but the fact remains that thoughtless people with guns, not sportsmen, of course, seem to find his towering bulk irresistible, and have succeeded for the most part in driving his not unfriendly presence beyond the limits of rifle range. Why cannot some inventor of aeroplanes bring out an automatic soaring target, as big as a barn door, stuffed with tin cans, chicken feathers and a bottle of red ink, which when hit with a bullet would fall to earth with a crash like the walls of Jericho, and so satisfy at trifling cost this peculiar lust of lead-throwing? The stateliness of the Heron is too vital a part of our western landscape to be so wantonly sacrificed.

W. Lee Chambers records[1] the disappearance at Santa Monica of a colony which in 1895 numbered 35 pairs, and in 1901 was reduced to one. Even "scientific collectors" would do well to spare this bird henceforth. A recent review, based on the consideration of 221 specimens, suggests the possibility of there being three subspecies in California. No doubt "more adequate material," say ten times greater, would settle that point, and also—the Heron.

No. 383

American Egret

A. O. U. No. 196. **Casmerodias egretta** (Gmelin).

Synonyms.—White Egret. Great White Egret. California White Egret. Western Egret. White Heron. California White Heron. "White Crane."

Description.—*Adult in breeding plumage:* Entire plumage pure white; from the interscapular region originates a train of from forty to fifty elongated feathers, "aigrettes," with enlarged and stiffened shafts, and decomposed filamentous webs, which reach from eight to twelve inches beyond the tail; lores orange. Bill yellow with black tip; legs and feet black. *Adults after the breeding season and immature:* Without elongated plumes on the back. Length, including dorsal plumes: 914.4-1066.8 (36.00-42.00). Average of 5 Los Banos specimens: Length (*not* including plumes) 669 (26.34); wing 388 (15.27); bill 115 (4.53); tarsus 158.8 (6.22).

Recognition Marks.—Eagle size; *pure* white plumage with elongated proportions distinctive; bill *yellow*, as distinguished from *Egretta thula thula*, much larger.

Nesting.—*Nest:* A platform of sticks in bushes or trees near or over water. *Eggs:* 3 or 4, rarely 5; light bluish green (glaucous green to deep lichen-green). Av. size 57.15 x 38.1 (2.25 x 1.50). *Season:* April.

[1] Condor, Vol. IV., March, 1902, p. 47.

General Range.—Temperate and tropical America. Breeds in Oregon and California, and from North Carolina and the Gulf States south to Argentina. Winters from California and the Gulf States southward. Formerly bred north to New Jersey and even Wisconsin, and has occurred north to Canadian Provinces.

Distribution in California.—Breeds sparingly in the San Joaquin Valley and at Clear Lake. Formerly abundant and breeding in other large lakes of northeastern section. Now scarce and of irregular occurrence irrespective of season anywhere save in northeastern plateau, where found only in summer. Winters in some numbers in valley of the Colorado River, and is probably increasing in numbers.

Authorities.—Gambel (*Ardea occidentalis*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 222 (Calif.); *Cooke*, U. S. Dept. Agric., Biol. Surv. Circular no. 84, 1911, p. 1, map (distribution); *ibid.*, U. S. Dept. Agric., Biol. Surv. Bull., no. 45, 1913, p. 40, map (distr. and migr.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 30 (status in s. Calif.); *Mailliard*, Condor, vol. xiv., 1912, p. 74 (San Joaquin Valley; recent abundance).

CASMERODIAS EGRETTA, the American Beauty, virgin daughter of the wilderness, and Queen of the South, has been freed at last from her persecutors. This hunted wild thing, whose image few of us had seen, and whose name had almost become a memory, is at liberty now to put on her bridal array of dazzling linen and snowy plumes. She may grace our horizon upon her migratory passages, or she may light up our swamps when she deigns to pause for rest and amphibian refreshment. There is none left to molest or to make her afraid.

The story of the sacrifice of this magnificent bird upon the altar of fashion, and of her subsequent redemption by the hand of the American Association of Audubon Societies, has been often told. The slaughter of the egrets at the behest of Parisian feather merchants was the most tragic episode in American ornithological history. The rescue, effected by the aroused sentiments of pity and indignation, crystallizing at last in the enactment of the Lacy Act, and the ratification (August 16, 1916) and final approval (July 3, 1918) of the Federal migratory-bird treaty, was also the most sensational and gratifying. The campaign of education which was carried on for fifteen years, and which brought about this splendid result, may be likened to those which abolished slavery and, more recently, liquor. It was a people's movement which would not be denied. Of course making and enforcing laws are not exactly synonymous. A villain named Cuthbert is said to have cleaned up thirty-five hundred dollars as the result of three days' successful law-breaking in a Florida swamp. But the Government means business today, and the last "blind piggers" of featherdom are being cleaned out. Two quotations from a late report of the Chief of Bureau of Biological Survey (June 30, 1919) are apropos:

"The treaty act and the regulations thereunder make it unlawful to possess, purchase, sell, or transport aigrettes or the skins of any migra-

Taken in Santa Barbara *Photo by the Author*

A CONSPICUOUS FIGURE

tory birds, except under permit for purely scientific purposes; but the skins and feathers of migratory game birds lawfully killed may be possessed without a permit. The *wearing* of aigrettes and plumes of migratory birds, other than the feathers of migratory game birds lawfully killed, is thus made unlawful, and it is believed that women will refrain from wearing aigrettes or other prohibited plumage as soon as they have become familiar with the provisions of the law. The market for these plumes will then be closed and a check placed upon the indiscriminate slaughter of these beautiful birds of plumage."

"The extent to which this illegal traffic has been conducted was indicated when United States game wardens, armed with a Federal warrant, searched the apartments of a Seminole Indian at Miami, Fla., and seized aigrettes valued at about $3000. It is reliably stated that the yearly earnings of this Indian from the sale of plumes to Florida tourists and others have for several years exceeded $5000. The Indian is now under bonds to await the action of the Federal court."

We may only pause here to remind ourselves how hideous was the persecution from which the bird has only just escaped. The peculiar cruelty of the war of extermination lay in the fact that in order to secure the aigrettes which were to nod and dance on some lady's bonnet, the bird which owned them had to be shot *during the nesting season.* The magnificent train of feathers is provided only at this time of year, as a bride is granted her best robes for the wedding day and the honeymoon; and if the butchers, whom the feather-merchants hired, had waited until

the young birds were raised, the wedding garments of the parents would either have been worn threadbare in service, or else cast aside. Therefore, since it had to be done, as our gentle ladies had decreed, the only way was to visit a colony during the breeding season, shoot all the old birds (who would not, of course, desert their young), snatch out their nuptial plumes, and leave their carcasses to putrify, while the starving children called down from the treetops to the ears that heard not. Thus, a single plume-hunter has killed hundreds of Egrets in a day, and in the palmy days of the "industry" certain gangs were able to kill tens of thousands in a single season.

Of the former abundance of the Egret in California we have no clear conception. Heermann said,[1] "They breed in large numbers, associated with other species, on the edges of the sloughs and marshes." Henshaw wrote of conditions in 1877 and 1878: "Colonies of this species reside on many of the lakes which lie at the foot of the mountains in eastern California and western Nevada." It is probable, therefore, that the species occurred in summer wherever there was sufficient inducement of water and flooded woods or large expanse of tules, and, notably, in the great interior valley. Even

Taken near Santa Barbara AMERICAN EGRETS *Photo by the Author*

[1] Pac. R. R. Surv., Vol. 10, p. 63.

Taken in Imperial Valley *Photo by the Author*

A VIEW OF THE LOWER COLORADO VALLEY
LOOKING ACROSS INTO ARIZONA: A FAVORITE WINTER RANGE OF THE EGRETS

during the period of maximum depression, say during the first decade of the present century, stragglers were occasionally noted both in winter and in summer. Linton believed that there was a small colony nesting at Buena Vista Lake in the summer of 1908.[1] Willett says:[2] "During the last ten years I have seen three or four birds in the marshes of Los Angeles and Orange Counties." During the period of slow recovery, say from 1910 on, scattered individuals have been noted with such frequency that occurrences are no longer considered worthy of record. At Santa Barbara we count on seeing at least one bird every winter, though I have never seen more than four at once. In the winter of 1913 I had the privilege of seeing a "large" company of Egrets in the heavily wooded backwater of the Laguna Dam at Potholes. In the center of the lagoon, where the dead cottonwood timber was thickest, they had established a sort of noonday rest camp. On the 8th of February, from the vantage of a treetop, I counted twenty-eight birds as they filed into camp, besides a little Snowy Heron who acted as file-closer. I felt as one who had gazed upon the bivouac of Diana and her huntresses. And for myself I would as lief shoot into a flock of goddesses as to molest these snowy splendors. Oh, the unutterable hunnishness of the traffic which brought our angels of the swamp to such a pass!

[1] Pac. Coast Avifauna, No. 7 (1912), p. 31.
[2] Ibid.

Of the present breeding of the Egret within our limits, we have little exact information. William L. Finley reported[1] a small colony at Clear Lake, a government reservation, and Dr. H. C. Bryant gives a brief account[2] of a nesting colony located near Crows Landing, in Stanislaus County. Nests in this colony, which was visited on the 3rd of August, 1915, were found in the tops of large oak trees lining a small creek tributary to the San Joaquin River. Only a few birds lingered at the time of the visit, but a neighboring farmer estimated the normal population at from fifty to seventy-five, and said that a much larger number had nested in the same vicinity two years before.

The largest colony in the West formerly nested at Malheur Lake in central-eastern Oregon, but the plume-hunters reduced this from countless thousands to a pitiful remnant of six or eight pairs, which the Federal authorities are carefully nursing back into life. By their success in this regard we shall be able to measure the degree of culture which western civilization has finally attained.

No. 384

Snowy Egret

A. O. U. No. 197. **Egretta thula thula** (Molina).

Synonyms.—Little White Egret. Snowy Heron. Lesser Egret.

Description.—*Adult in breeding plumage:* Entire plumage pure white; a bunch of 40 or 50 "aigrettes" originates on middle of back and reaches to or beyond tail; character of plumes as in *Casmerodias egretta*, but delicately recurved toward tip; a lengthened occipital crest of decomposed feathers; feathers on side of neck below somewhat similar to those on back, not recurved; lores, eyes, and toes yellow; bill black, yellow at base; legs mainly black. *Adult after breeding season and immature:* Without dorsal plumes. Length 508-635 (20.00-25.00); wing 254 (10.00); bill 82.55 (3.25); tarsus 105.4 (4.15).

Recognition Marks.—Gull size; pure white plumage distinctive for all save *Casmerodias egretta;* much smaller, and bill chiefly black.

Nesting.—*Nest:* A sturdy platform of rushes lashed midway of tules, or else sticks placed in bushes. *Eggs:* 3 to 5; ovate to elliptical ovate; light bluish green, pale glaucous green. Av. size 42.9 x 32.5 (1.69 x 1.28). *Season:* May.

Range of *Egretta thula.*—Temperate and tropical America. Formerly bred from New Jersey, Indiana, Nebraska, and Oregon, south to Chile and Argentina; now breeds locally from North Carolina to Florida and Louisiana, in Utah near Salt Lake, and casually (?) in central California. Winters from the Colorado River delta and Florida southward. Has wandered after the close of the breeding season casually to Nova Scotia, Ontario, Alberta, and British Columbia.

[1] Bird Lore, Vol. XIII., Nov.-Dec., 1911, p. 347.
[2] Calif. Fish and Game, Vol. I., No. 5, p. 238.

The Snowy Egret

Distribution in California.—Of rare and irregular occurrence, chiefly in the Sacramento-San Joaquin Valley, where also it has been seen in winter as far north as Stockton (Belding). Occurs coastally during migrations (Santa Barbara, May 2-4, 1912; May 1-5, 1913; Apr. 28, 1914). One breeding record (4 nests), Los Banos, May 27, 1914.

Authorities.—**Baird** (*Garzetta candidissima*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 665 (Sacramento Valley; Ft. Tejon); *J. Mailliard*, Condor, vol. xiii., 1911, p. 50 (Sacramento, June, 1880, one spec.); *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 45, 1913, p. 45, map (distr. and migr.); *Dawson*, Condor, vol. xvii., 1915, p. 97 (Dos Palos, Merced Co.; desc. nest, eggs, and habits).

THE STRENUOUS campaign of education which culminated in the summer of 1913 in the passage of the McLean Bill, forbidding the transportation into the United States of the plumage of any wild bird for millinery or other non-scientific purpose, has fortunately relieved us of the necessity of reviewing in detail the cruel history of the near extirpation of the most innocent and beautiful of all the denizens of swampy wildernesses. What has been accomplished can never be undone; for the enlightened sentiment of America will never again submit to the ruthless dictation of the feather merchants of lower Broadway. True,

Taken in Merced County

NEST AND EGGS OF SNOWY HERON

Photo by the Author

the world battle is not yet won. Paris, who cares not where she gets her finery, is still to be reckoned with. Unhumbled by her awful lessons of adversity, she still incites her demimonde to flaunt its borrowed feathers before the dazzled eyes alike of sober dames and silly debutantes, who might better be at home exercising their ingenuity in the construction of hats and gowns which should really express their own individuality. Better a thousand times a bonnet made in America than a gaudy creation from Paris whose ornaments are eloquent of plundered wildernesses and blood and crime.

Taken in Merced County *Photo by the Author*

A PASSING ANGEL

But the Snowy Heron, vision of loveliness, garbed as purely as an angel, tenderest victim ever sought out by the high priests of fashion—our Snowy Heron is coming back. Of the herons in the eastern Southland, we get most encouraging reports. Reduced at one time by the ravages of the plume-hunters to the verge of supposed extinction, they have shown under the protective measures of the Audubon Societies, halting and handicapped as they were at first, notable recuperative power. Now a score are reported from some point in Florida, nesting with Louisianas and Squawks and Little Blues; now a

hundred appear in South Carolina, gladdening the eyes of some eager bird-watcher; now a thousand in some great Louisiana rookery confirm the good news that the glory of the Southland is to return.

Of the Snowy Heron in California, little is to be said, but much is to be hoped. Early observers either overlooked it or took it as a matter of course. Heermann[1] simply says "abundant," while Newberry says nothing. Dr. Brewer, writing in 1884, says:[2] "Dr. Cooper speaks of it as common at all seasons along the southern coast of California. In the summer it migrates to the summit of the Sierra Nevada [!], to Lake

Taken in Merced County *Photo by the Author*

SNOWY HEIRS

Tahoe, and probably throughout California and Oregon. He has always found it very shy, more so than the larger one [*Casmerodias egretta*]. About the end of April it migrates to some extent from the southern parts of the State in large flocks, but he has met with it in July near San Pedro, where he supposed that it was nesting in the mountains, or some other retired places in the vicinity."

There being no breeding record forthcoming, it was later supposed that all written records were of wanderers, it being well known that Amer-

[1] Pac. R. R. Survey, Vol. 10, p. 63.
[2] Baird, Brewer and Ridgway, Water Birds, Vol. I., p. 30.

ican Herons are prone to wander north at the close of the breeding season, and there is such a record of the Snowy Heron as far north as British Columbia, viz., two specimens taken near Vancouver, B. C., in May, 1879.

Only recently records began to reappear in print. C. P. Streator had noted it as a common winter visitant at Santa Barbara in 1885, while the next published appearance in California was in the spring of 1907 at Buena Vista, by C. B. Linton. On July 11, 1912, H. C. Bryant saw three individuals at Los Baños. Willett,[1] writing in 1912, had never seen them and judged them near extinction.

My own acquaintance with the Snowy Heron began at Santa Barbara, when a solitary bird appeared on the 2nd of May, 1912. On the 12th of the following February we found a single individual trailing a large flock of American Egrets at Potholes. Again, on the 28th of

[1] Birds of Southern Calif., p. 31.

Taken in Merced County *Photo by the Author*

A JAPANESQUE

THE UPPER FIGURE IS THAT OF A SNOWY HERON, THE LOWER THAT OF A BLACK-CROWNED NIGHT HERON

April, 1914, two birds appeared at "Sandyland," near Santa Barbara; while on the 26th of May, 1914, we ran plump into a small breeding colony of five pairs at Los Baños.

We had seen the birds for several days previously, standing like marble statues at the margin of the smaller ponds, looking, no doubt, for tadpoles and minnows, or else stalking sedately about on the dry land. The country hereabouts is nearly destitute of trees, so we found the Snowies making their humble cradles in the depths of a small cat-tail island along with two hundred pairs of Squawks.

The quarters were so narrow and the nests so crowded, and the birds rose at such a distance, that we could not among the thronging, squawking Night Herons, trace any of the gentle silent Snowies to their nests. But we soon made out eggs of a definitely smaller type, reposing on a platform which for construction was indistinguishable from those of the Squawks, mere shelves of broken-down reeds interspersed or reinforced with twigs of *spirostachys*. Five of these suspected nests were discovered, four of which contained five eggs each and one four. On the 27th of May the fair prisons on one of the platforms began to burst open, and they delivered at intervals of two days chicks covered with long sparse *white* down. Their appearance, indubitable Snowies, taught us two things: viz., that the Snowy Heron deposits its eggs every other day, and—the complementary fact—that incubation begins with the depositing of the first egg. Indeed, this must be the rule with all birds of this group, for with eggs left exposed in such a situation, the sun's rays or enemies would be fatal from the first. The chicks so hatched showed also an increasing disparity in size and strength, but even the week-old first-born when visited on June 4th was amazingly small and helpless. The entire brood sat with open mouths panting lustily; yet not even the oldest offered any defense, as, I am sure, a like-aged Squawk would have done.

No. 385

Louisiana Heron

A. O. U. No. 199. **Hydranassa tricolor ruficollis** (Gosse).

Description.—*Adult:* "Slaty-blue on back and wings; mostly white below and along throat-line; crest and most of neck reddish-purple, mixed below with slaty; longest narrow feathers of crest white; lower back and rump white, but concealed by the dull purplish-brown feathers of the train, which whitens toward the end. Bill black and blue, more lilac at base and to lores; legs and feet slate-color; iris red. *Adults in winter* lack the plumes and have the bill black and yellow; lores yellow; legs yellowish-green, dusky in front; iris red. *Young* variously different but never white; lacking long occipital plumes and dorsal train; neck and back bright brownish-red; rump, throat-

line, and underparts white; quills and tail pale purplish-blue; legs dusky-greenish" (Coues "Key," 5th Ed.). Length of adult 609.6-685.8 (24.00-27.00) exclusive of train; wing 254-279.4 (10.00-11.00); tail 88.9 (3.50); bill 101.6-127 (4.00-5.00); tarsus 101.6 (4.00).

Nesting.—Does not breed in California. *Nest:* Of sticks, in large colonies, placed in trees, usually mangroves low over water. *Eggs:* 3 to 5; bluish green, scarcely distinguishable from those of Snowy Heron (*Egretta thula thula*). Av. size 44.45 x 33 (1.75 x 1.30).

Range of *Hydranassa tricolor.*—Southeastern North America, West Indies, Middle America, and northern South America (Guiana, Venezuela, Amazonia).

Range of *H. t. ruficollis.*—"Breeds from North Carolina and the Gulf States to the West Indies, Mexico (both coasts), and Central America; winters from South Carolina southward; casual in Indiana, New Jersey, and Long Island" (A. O. U. Check-List, 3rd Ed.).

Occurrence in California.—Accidental, one record; San Diego, Jan. 17, 1914, by Laurence J. Huey.

Authorities.—Huey (*Hydranassa tricolor ruficollis*), Condor, vol. xvii., 1915, p. 57 (La Punta, San Diego Bay, Jan. 17, 1914, one spec.); *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 45, 1913, p. 51, map (distr. and migr.).

HERONS of almost any species may be expected to wander in the summer far north of their breeding range. But the occurrence in winter of this specimen of *Hydranassa*, not known to breed west nor north of Guaymas, Mexico, is altogether exceptional. The bird is one of the commonest of Herons in the South Atlantic and Gulf States, and breeds in colonies which sometimes number thousands.

No. 386

Anthony's Green Heron

A. O. U. No. 201c. **Butorides virescens anthonyi** (Mearns).

Synonyms.—Fly-up-the-Creek. Rain Crow.

Description.—*Adult:* Top of head and occipital crest glossy dark green (bottle-green); median line of throat and neck white, boldly spotted on jugulum with greenish black or greenish dusky; remainder of head and neck rich maroon-chestnut (in extreme examples, and paler and more tawny in average specimens), the feathers more or less decomposed; general color of back and wings green, the interscapulars lanceolate and tapering, with a glaucous or slaty cast and with white shafts; middle coverts bright bottle-green edged with buff; greater coverts dull bottle-green edged with whitish; the primaries dusky slate, with glaucous and greenish reflections; the inner primaries and secondaries narrowly tipped with white; underparts slaty or brownish gray, with buffy or ochraceous washing, and irregularly outcropping white. Bill dark green above, yellow below; iris and lores yellow; feet and legs greenish yellow. *Immature:* Occipital crest not so long; crown streaked with cinnamon; chestnut of neck not so

deep, reduced in extent; back feathers unmodified, plain, glossy greenish; wing-coverts broadly margined with ochraceous, some of the feathers, with the outer scapulars, having wedge-shaped tips of buffy or whitish; underparts whitish, striped with greenish- and reddish-dusky, most heavily on sides of breast and neck. [The foregoing description applies almost equally well to *typicus*, which is little if any darker than extreme examples of this form; but *anthonyi* tends to paleness, especially in the less intense chestnut of the neck and sides of breast, in the more extensive white of the throat and breast centrally, and in the paler slaty of the remaining underparts. Moreover, *anthonyi* is a somewhat larger bird than *B. virescens virescens*, although the difference at no point exceeds 7% of the former.] Length 406.4-470 (16.00-18.50); average of 15 males: wing 196 (7.72); tail 72.8 (2.97); bill 61 (2.40); tarsus 53.9 (2.12). Female slightly smaller.

Recognition Marks.—Crow size; chestnut and greenish coloration above.

Nesting.—*Nest:* A platform of sticks placed at moderate heights in bushes of swamp, or trees of neighboring orchards, etc. *Eggs:* 3 to 8, 9 of record; pale bluish green. Av. size 38.1 x 29.2 (1.50 x 1.15). *Season:* May; one brood.

Range of *Butorides virescens.*—United States south to Central America and the West Indies.

Range of *B. v. anthonyi.*—Southwestern United States and Mexico. Breeds from California, northern Lower California, and Arizona, south to Michoacan; winters from southern California to southern Mexico.

Distribution in California.—Fairly common summer resident by lakes and streams west of the Sierras and in the southeastern portion of the State south to San Diego. Sparingly resident in winter in the San Diegan district, and of record at Stockton (Belding).

Authorities.—Baird (*Butorides virescens*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 676, part (Sacramento Valley; Tulare Valley; Ft. Tejon); *Mearns*, Auk, vol. xii., 1895, p. 257 (*Ardea virescens anthonyi*, new subspecies; type locality, Seven Wells, Salton R., Colo. Desert, Calif.); *Oberholser*, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 543 (syst.; monogr.); *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 45, 1913, p. 58, map (distr. and migr.); *Tyler*, Pac. Coast Avifauna, no. 9, 1913, p. 21 (San Joaquin Valley; nest and eggs; habits).

THE ANTHONY Green Heron is perhaps nowhere so common as is the eastern bird *virescens*, but it is fairly well distributed in California along streams and by lowland waters, save in the northern portion. The bird is essentially solitary in habit and only abundance of fishing will induce a few pairs to form a scattered colony for nesting purposes. Arriving early in April, the birds quickly deploy through the swamps and along shaded lagoons, where they lead a furtive, albeit highly prosperous, existence. When surprised at his work of frog-catching, the Heron either rises with a frightened squawk and makes off with quick graceful wing-strokes, or else alights easily upon some midway branch to reconsider the danger. Here he may pace restlessly to and fro along the limb, craning his neck and twitching his tail in a very nervous manner, or he may elect to "freeze" in some non-committal attitude until danger is past. Opportunity is thus

afforded for study at close range of a plumage which is unusually handsome, especially as regards the bottle-green and glaucous shades of the upperparts. Again, I have caught a bird in the open by a tide-gut, alert and very cocky, intent upon the fishing. Upon discovering that he is the object of scrutiny, the bird will shrivel marvelously, upon the instant, and go scuttling off across the mud, praying only that he may be taken for an emaciated Marsh Sparrow.

The ordinary fare of this little heron consists of minnows, frogs, snails, leeches, etc., but as the season advances, beetles and other insects, with their larvæ, are added. Dr. Lynds Jones tells of an eastern bird which he once saw stretched out flat on a slanting log at a point where it ran under water, and beneath which various kinds of minnows had found a congenial shelter. The bird was resting motionless, with its bill at the water's edge, when suddenly it darted its head under water and withdrew a wriggling minnow. This it swallowed at once and then waited at ready as before. Sometimes a quarter of an hour would pass before the next fish, silly or forgetful, would venture too near the waiting spear. The heron returned to his lowly station daily, and watched with the patience of an Eskimo until the hole was fished out.

Taken in Santa Barbara *Photo by the Author*

A NODE OF FLIGHT

ANTHONY GREEN HERON FLUSHING FROM THE ESTERO

The willow groves which flank streams or cover swampy bottoms are favorite places of resort for nest building. In default of these, however, the birds will resort to oaks or even fir saplings. The nest is a shallow but substantial platform built up with dead twigs or sticks of a nearly uniform size and lodged securely upon spreading branches. There is no suspicion of a lining, and the four or

Taken in Santa Barbara *Photo by the Author*

A GHOSTLY WATCHER

five handsome eggs, of the well-known heron-blue type, may sometimes be glimpsed from below. "Finders is havers," where the oölogist is concerned with this comparatively rare breeding species, although you might suppose that a pair laying in *an old crow's nest* (May 12, 1910) would have escaped the attention of even such an astute collector as Sydney Peyton.[1]

The parent birds are very solicitous for their eggs and young, and employ, in their efforts to discourage investigation, an exceedingly low type of Dutch. Besides disgusting execrations, which are half hiss and half caw, the anxious bird cries *snkowk*, in a very loud voice, and flirts its wings and jerks its tail in a manner which would intimidate a smaller foe.

A nestful of callow young is an interesting sight. At a signal from the old bird the youngsters pause and freeze with upturned beaks, looking like a tiny group of palisades done in bronze. They know, too, when to be silent; and one would not often discover them, save for the abundance of whitewash which adorns the surrounding limbs and the ground below. If disturbed, they can clamber out of the nest and make off across the surrounding branches with great agility.

No. 387

Black-crowned Night Heron

A. O. U. No. 202. **Nycticorax nycticorax nævius** (Boddaert).

Synonyms.—Qua-bird. Quawk. Night Squawk.

Description.—*Adult in breeding plumage:* Extreme forehead and line over eye white; entire underparts white,—pure on chin and throat, elsewhere delicately tinged

[1] Condor, Vol. XIII., p. 35.

with light ashy gray or lilaceous; crown, nape, and scapular-mantle (including back and interscapular region) lustrous greenish black; the occipital crest with several narrow, much-elongated, cylindrical, pure white plumes; remaining upperparts ashy- or smoky-gray; edge of wing white. Bill black; lores greenish; irides red; legs yellow. *Immature:* Above fuscous, with central stripes, or centro-terminal wedge-shaped spots of white and buffy; green-tinged on crown and back, or not, according to age; below and on sides of head and neck white heavily streaked with fuscous. Length 584.2-660.4 (23.00-26.00); wing 317.5 (12.50); tail 120.6 (4.75); bill 76.2 (3.00); tarsus 83.8 (3.30) middle toe and claw 87.6 (3.45).

Recognition Marks.—Brant size; greenish black crown and mantle of adult contrasting with ashy gray; general streakiness of young.

Nesting.—*Nest:* In colonies, platform of sticks in trees, or of rushes bedded in reeds, or placed on ground of open marsh. *Eggs:* 2 to 5; elliptical ovate, variable in size, very light bluish green (pale glaucous green to pale fluorite green). Av. size 53.5 x 47.2 (2.10 x 1.46); index 69.5. *Season:* April.

Range of *Nycticorax nycticorax.*—Central and southern Eurasia, Africa, North and South America.

Range of *N. n. nævius.*—North and South America. Breeds from northern Washington, Saskatchewan, southern Manitoba, south to Patagonia; winters from central California and the Gulf States southward.

Distribution in California.—Abundant summer resident in suitable localities throughout the State. Winters sparingly in the central valley and the San Diegan district.

Authorities.—Baird (*Nyctiardea gardeni*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 678 (San Diego; Petaluma); *Finley*, Condor, vol. viii., 1906, p. 35, figs. (desc. of breeding colony near San Francisco; photos).

Taken near Los Banos *Photo by the Author*

LEAVING THEIR NESTS

THE TULES ARE PART OF A TINY ISLAND GIVEN OVER TO THE BIRDS

1911

The Black-crowned Night Heron

EVERY investigator of cat-tails, and "tules," those giant bulrushes of California, has been startled in his course, at some time or other, by the eruption of an unsuspected company of gray ghosts. They had marked his approach as they stood about in grave dignity, silent, motionless, and disapproving; but their color had blended so well with that of the cover that the intruder blundered on, unmindful that he was invading precincts sacred to Nycticoracine slumbers. *Wawrk*, says the bird whose nerves give out first, and *wawrk, wawrk*, shout the others, now that

Taken near Los Banos *Photo by the Author*

AN INFANT MENACE

THIS YOUNGSTER IN PIN-FEATHERS MEANS TO STAND HIS GROUND

the spell is broken. The reeds boil herons and a confusion of gray wings smites the beholder, until the pouting company has reassembled at some distant point and readdressed itself to sleep.

True to their name, the Black-crowned Night Herons fly and hunt chiefly by night. On this account and because of their throaty notes, they have ever been the objects of superstitious dread on the part of savages; and the sounds which they make are not exactly comforting to the ears of white men, save those of the hardened ornithologist. The well-known cry may sometimes be allowed to pass as *quawk* (never "*qua*"),

but usually it is jerked out with emphasis or ill-nature, *waurk*, or *work*. Harmless as the monosyllable may appear when uttered singly, and when divested of its ghostly suggestiveness, the din raised by a heron rookery at full juvenal tide is mighty and discordant.

As the nesting season imposes greater obligations upon the parents, they hunt by day as well as by night, being found sometimes singly but oftener in pairs, moving from place to place with laggard wings beating in stately syncopation.

This bird may often be seen to advantage about the unfrequented lakes of San Joaquin Valley or in the lava country of the northern interior. Here it moves about sluggishly at the edge of a pool, or else, posting on a commanding block of basalt, one will stand sentinel by the hour, head withdrawn between shoulders, like an adjutant in a great coat, unobserving (apparently), unmindful of the passage of time, a somber gray figure which embodies better than anything else the dear desolation of the wilderness.

Taken at Los Banos *Photo by the Author*

OLD MODELS

Nesting is strictly a social affair. A colony comprising anywhere from a score to a thousand individuals will bed down together in the rushes which line a group of tide-guts in the San Mateo marshes, or they will occupy a tule island at Los Baños, or they will, with as easy grace, take to the treetops. A thriving colony has for years nested in the shade trees,—mingled live oaks, cypresses and eucalypti,—of the Cohen place in Alameda. Electric cars roar by within a block, but your

Photo by Finley and Bohlman
YOUNG BLACK-CROWNED NIGHT HERON

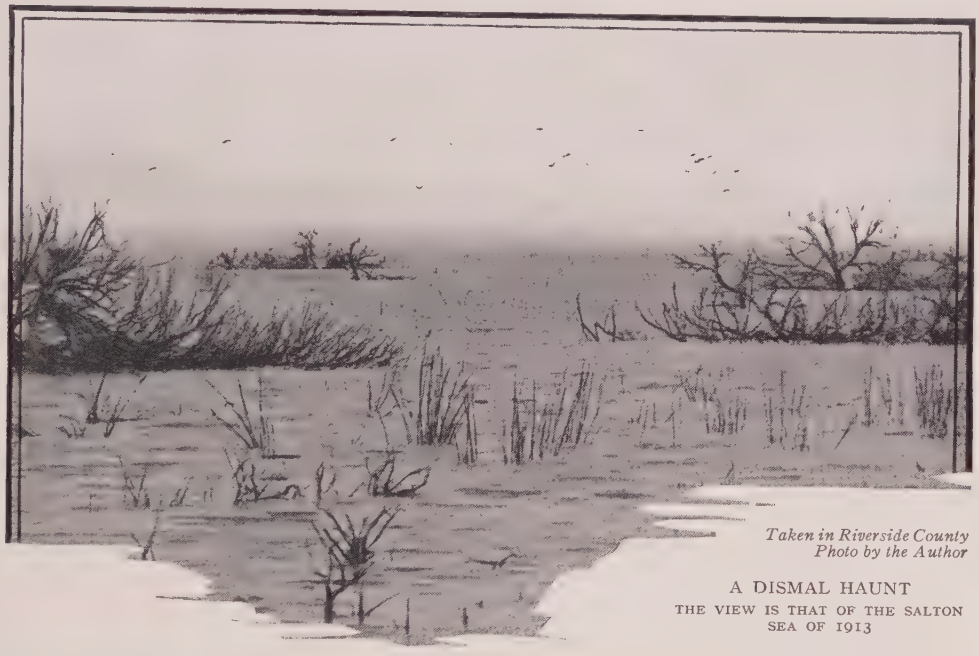
Night Heron is a sound sleeper by day. Besides, given a convenient food supply, suitable cover, and *absolute protection*, any bird will nest anywhere.

For particular consideration a crowded half acre near Los Baños will do as well as any. One approaching in late May, through the waist-high waters which guard the place, would hardly suspect from a casual heron or two the sleeping volcano ahead. Suddenly at fifty yards there is a salute—unmatched suitors, perhaps—then a volley—careless fathers—then another volley—timorous birds, whose homes are not completed yet, making agonized ∩'s and M's of flight—then, as we near the margin of the reeds an irruption ensues, a general exodus of both sexes and of all save the most devoted dispositions. After that the reeds continue to emit squawks in puffs and belches. Stately figures fit for Japanese screens alternate with frenzied mountebanks who have lost, under stress, the very last trace of dignity.

Nests are at every level, from the top of the reeds above your head to those which have been caught and submerged by the rising water; nests built on the bent down reeds; nests caught midway of the stems; nests of every sort, flat, flimsy, unpretentious; nests rounded, bowl-shaped and substantial; nests of cat-tail leaves alone, laid flat-wise; nests of Kern greasewood stems; nests of long fine eucalyptus branches brought from far. Many nests are empty; pale blue eggs, three or four in number, dotted with fine chalky pimples, lie in others; while a few hold wriggling young.

A week later we shall see the youngsters to better advantage. As we approach the nest, the chicks will either cower and shiver or else freeze religiously until actually disturbed. Once the spell is broken, habit

will divide evenly between those who will try to escape by scuttling through the reeds and those who will stay to fight it out. Of the former, many certainly come to grief; and from the number of drowned chicks I have seen, I judge that the old birds have no wit to retrieve their youngsters once they leave the nest. Yet I saw one bantling which went souse!



Taken in Riverside County
Photo by the Author

A DISMAL HAUNT
THE VIEW IS THAT OF THE SALTON SEA OF 1913

into the water and scrambled out again by clambering up the reeds. Not only were his great toes wrapped about the plant-stems, but he seized them with his bill as well, parrot-fashion.

From those which stay to fight we shall hear a rattling or clucking Rail-like noise, delivered with menacing gestures. Two young rascals, one of whom is depicted on p. 1912, each about the size of a cocoanut, made as though to eat us alive. With open beak, and fauces which really did look terrifying to a degree, they parried and lunged with the valor of Spartans. Between thrusts the muscles of the throat quivered and vibrated spasmodically, precisely as in the case of young cormorants. This behavior character is, in fact, a common ancestral inheritance of the *Steganopodes* and *Herodiones*.

These particular warriors were certainly uglier than the law ought to allow. Potbellies and flippers are common juvenal characters, but the heads of these infants were covered with a twisty, scattering, long,

white down which made them look like young furies. Their yellow eyes flashed fire, and they breathed defiance from the tips of their gray-green beaks to the tips of their pale green toes. Poor little tads! I suppose they were really scared half to death.

No. 388

American Bittern

A. O. U. No. 190. **Botaurus lentiginosus** (Montagu).

Synonyms.—Bog-bull. Stake-driver. Thunder-pump. Indian Hen.

Description.—*Adult:* General color ochraceous or ochraceous-buff; darker, brownish, on back, the crown and upper back washed with blackish, the neck obscurely streaked with buffy and brown; the back and wings finely mottled, brownish, fuscous and ochraceous, becoming grayer marginally on wing-coverts; wing-quills and their coverts slaty; inner primaries and the secondaries tipped with ochraceous-rufous; a glossy, black or blackish stripe on side of neck anteriorly, continued to bill by indistinct, brownish line; chin and upper throat white; belly and crissum unmarked buffy; remaining underparts buffy or whitish, marked with large stripes of mottled ochraceous and dusky. Bill brownish black on ridge of culmen, pale yellow on sides and below; feet and legs yellowish green. Very variable in size. Length 584.2-863.6 (23.00-34.00); wing 282.7 (11.13); tail 110.5 (4.35); bill 82.5 (3.25); tarsus 91.4 (3.60); middle toe and claw 101.1 (3.98).

Recognition Marks.—Brant size; ochraceous coloration; heavily streaked below; secretive swamp-loving ways; heavy flight; "pumping" and "stake-driving" notes.

Nesting.—*Nest:* A platform of grasses or rushes placed on ground in meadow or marsh, or lashed midway of reeds. *Eggs:* 4 or 5; ovate; *cafe au lait*, deep yellowish olive-buff, or grayish isabella color. Av. size 48.3 x 36.6 (1.90 x 1.44). *Season:* Apr. 15–May; one brood.

General Range.—North America. Breeds from British Columbia, southern Mackenzie, southern Ungava, and Newfoundland south to southern California, Kansas, the Ohio Valley, and North Carolina, and occasionally the Southern States; winters from Virginia, the Ohio Valley, and the western border states south to Cuba and Central America. Casual in Great Britain.

Distribution in California.—Common resident in suitable localities practically throughout the State. Winters commonly except on the northeastern plateau—numbers probably augmented from the North at this season.

Authorities.—Gambel (*Botaurus minor*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 222 (Los Angeles); *Robertson*, Bull. Cooper Orn. Club, vol. i., 1899, p. 94 (Alamitos; desc. nest and eggs); *Chapin*, Auk, vol. xxxix., 1922, p. 196 (booming; anat.).

I WILL make it a possession for the bittern and pools of water, saith the Lord (Isaiah 14:11, A. V.). Nothing presents to the average mind a more vivid picture of desolation than a waste of swampy waters.

It is "miasmatic," repulsive, and, above all, useless. And the bittern, who dwells there, has become the very symbol of desolation. Doubtless, the prophet had first descried the bird at rest, with his head drawn in, his plumage relaxed and drooping, like a rudely thatched roof, and he himself looking not unlike a deserted hut, fit emblem of the melancholy morass. But if the prophet's observation stopped there, he missed knowing one of the oddest, weirdest, most elusive, and most versatile of all the feathered kind.

The Bittern has no desire to become famous. When suddenly flushed, the bird makes off with a low, frightened *quawk* on heavy, noiseless wings; but if he has a moment's warning and the ghost of a show at concealment, our bird stretches instead to an enormous height, holding the long bill vertically, and becomes rigid. Instead of a bulky fowl, he has become, to all intents and appearances, a slender reed-clump; and it requires the closest scrutiny to distinguish the bird with his streaky yellows and greens and browns, even after he has been pointed out. Indeed, one careful observer[1] relates how a bittern, caught in a sparse cover of cat-tails, was seen to sway to and fro in rhythmical obedience to a breeze which agitated his vegetable brethren. When the wind subsided the bird stopped, and when it freshened he resumed. Surely the simulative art could go no further. Even in the open, the bird will pose as a stake or a weed, and often quite successfully, relaxing or flying only when the danger has passed by.

This curious fowl is most at home in the weedy fastnesses of the swamp. Here he skulks or feeds by day; but as twilight approaches he becomes much more active, and stirs about among the reeds hunting snails and the larvæ of aquatic insects; or else he wades with deliberate step into the more open places in search of frogs, crayfish, and minnows. If the fishing is poor, he may venture up into the meadows in search of mice or moles. The bird takes foolish chances, and specimens are still brought into town by youthful hunters who persist in shooting strange creatures at sight—for no better reason than that they are strange. For all that the Bittern is so large to appearance, it is a light-weight, a mere mass of skin and feathers, not so heavy as some ducks. A light charge of fine shot will bring it down; but if it is only wounded, beware of that sharp beak, which shoots out like lightning and strikes the eye of dog or master with deadly precision.

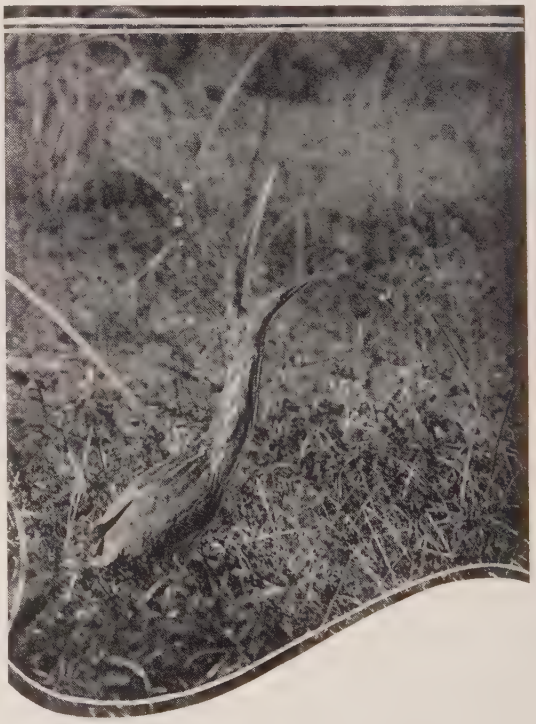
It is not, however, upon his beauty nor upon his weight that the Bittern's reputation rests, but upon his wonderful voice. The moonlight serenade which this ardent lover accords his mistress is one of the most outlandish performances in nature. Take an air-tight hogshead and

[1]Professor W. B. Barrows, of the Michigan State Agricultural College: Auk, Vol. XXX., Apr., 1913, pp. 187-190.

Taken near Santa Barbara *Photo by the Author*
AMERICAN BITTERN, FREEZING

The birds also indulge in another note not less strange, but somewhat less startling,—that of a stake smitten by a hammer. *Whack-a-whack, whack-a-whack,* goes the bird, and the dullest imagination can picture the stake sinking deeper into the mud with every stroke.

Another curious custom of the courting season has only recently immerse it suddenly in water with the bung-hole down; then allow the air to escape in great gurgles, say a caskful at a time, and you will get but a faint idea of the terrifying, earth-shaking power of the "Thunder-pump" at close range. *Umph-ta-googh, umph-ta-googh,* groans this absurd wooer, and the swamp quakes with apprehension. The case is serious, for the bird accompanies the cry with a motion which suggests the miseries of the Scriptural whale, and each successive Jonah has a long way to go before reaching fresh air. Maria likes the noise, of course, and—well, love *is* like seasickness, at certain stages.



Taken near Santa Barbara *Photo by the Author*
PREPARING TO SNEAK AWAY

been brought to light.[1] It seems that the male Bittern has as part of his nuptial equipment a patch of long downy white feathers on each side of the breast. These are ordinarily quite concealed by the surrounding plumage, and especially by the covering wings; but under special excitement, perhaps only that occasioned by a rival's presence, they are elevated and shifted until they appear in the form of conspicuous ruffs, each as large as a man's hand, over the bird's shoulders. On such occasions the birds crouch low upon the ground looking more like big partridges than herons, and parade about over the short grass by the hour, in an effort to intimidate, or at least to outshine, their foes.

Although *Botaurus* has been known to mankind ever since Pithecanthropus learned to pick his teeth with the splint-bone of an Eohippus, nobody happened to mention this interesting nuptial performance of the Bittern, nor even to profess knowledge of the existence of such a remarkable outfit for "making medicine," until the year of grace 1911. And this knowledge came to light, in a suburb of Boston, merely because an *observer* got busy with an every day (or every spring) opportunity. Let not the youthful Alexander (Wilson or Johnson or Davidson) sigh for more (ornithological) worlds to conquer, whether in Tibet, or Timbuctoo, until he has mastered the secrets of Grass Valley or the San Diego marshes.

The Bittern makes its nest either upon the dry ground adjacent to some swamp, or in the reeds themselves. In the former case, a careless lining of dried grasses and weed-stalks, or a few bits of dried cowdung, is provided. In the latter, the broken-down stems of surrounding sedges or the matted leaves of last year's cat-tails must suffice to keep the eggs out of the water.

Baby Bitterns wear their hair pompadour, and they possess an abundance of this light yellowish brown covering, substantially uniform throughout. Their bills are light yellow, and their legs are light greenish yellow; so that a chick of this description may be easily overlooked among the reeds. Half-grown birds do rely upon their protective coloration, and adopt the freezing tactics of their fathers with eminent success; but baby birds are under the older ancestral spell (the true *Ciconiiform* tradition) which bids them endeavor to intimidate their foes. Chicks three or four days old, therefore, will bridle and hiss and strike and make great pretense of swallowing you, as they would a coveted morsel. So earnest are these *enfants terribles* that their fauces quiver convulsively, and you thank your lucky stars that Bittern babies are smaller than Pterodactyls or Pteronodonts, or whatever antedeluvian monster it was that started this swallowing habit. It is a pathetic bluff, now, but once upon a time it must have been deadly earnest.

[1]See especially "Nuptial Plumes of Bitterns" by William Brewster: Auk, Vol. XXVIII., Jan., 1911, pp. 90-100.

No. 389

Least Bittern

A. O. U. No. 191. **Ixobrychus exilis exilis** (Gmelin).

Description.—*Adult male:* Top of head, back, scapulars, and tail shining black with faint greenish reflections; sides of head and neck pale rufous, deepening on back of neck to rich chestnut; wing-coverts, bordering the black, brownish buff; the greater coverts and tertials broadly tipped with chestnut-rufous, and the inner primaries and secondaries narrowly; underparts whitish, clearest on chin and sides of throat and lower belly, streaked with buffy on throat, fore-neck, chest, and flanks; dark brown patches on sides of breast, sometimes almost meeting in front. Bill pale yellow, blackening on culmen; iris yellow; legs greenish in front, yellow behind; toes yellow. *Adult female:* Similar, but dark brown rather than black on top of head; black of back entirely replaced by glossy rufous-brown, the scapulars margined on outer edge with white; buffy flank-streaks with sharp, blackish shaft-lines, etc. *Immature male:* Similar to adult, but back and scapulars washed with rufous, and feathers chestnut-tipped. *Immature female:* Like adult female, but feathers of back and scapulars bordered with ochraceous, etc. Length 304.8-355.6 (12.00-14.00); wing 116.8 (4.60); tail 40.6 (1.60); bill 44.5 (1.75); tarsus 40.6 (1.60); middle toe and claw 41.9 (1.65).

Recognition Marks.—Little hawk size; black or dark brown and rufous coloring above; slender form; marsh-skulking habits.

Nesting.—*Nest:* A raised and slightly hollowed platform of dead cattail leaves, etc., surrounded by water or mud of swamp. *Eggs:* 3 to 5, rarely 6; pale bluish- or greenish-white (often fading to white in collections). Av. size 30.6 x 22.9 (1.20 x .90).

Range of *Ixobrychus exilis.*—Temperate North America, Middle America, and northern South America.

Range of *I. e. exilis.*—As above except Colombia [*I. e. bogotensis* (Chapman)]. Breeds from southern Oregon and southern tier of Canadian Provinces east from Saskatchewan south to West Indies and Brazil (A. O. U. Com.). Winters from the Gulf States southward.

Distribution in California.—Not common summer resident in the San Diegan district and north through the central valley. Breeding stations are Stockton (Belding), Los Banos (Dawson), Los Angeles County (Grinnell), San Jacinto Lake (Willett and Jay), and Escondido (Sharp).

Authorities.—Vigors (*Ardea exilis*), Zool. Voy. "Blossom," 1839, p. 27 (San Francisco); *Sharp*, Condor, vol. ix., 1907, p. 94 (San Luis Rey, San Diego Co.; nesting); *Willett and Jay*, Condor, vol. xiii., 1911, p. 159, fig. (desc. and photo of nest and eggs; San Jacinto Lake).

ONE IS TEMPTED to apply the word awkward to this bird, as he is ordinarily noted in daylight. See him as he springs up suddenly from your feet in the cat-tail tangle—the flapping wings, the straightening neck, the legs clumsily dangled until the bird's balance is gained, the noisy plash with which he settles into the reeds again—all this seems

awkward enough. Or if you persist in dashing after the stranger, having noted his exact whereabouts, see him as he stretches to an incredible length, and stiffens to the semblance of a reed-stalk,—slender, immovable, the very counterpart of any of his sere and lifeless companions. In this position, if you avoid betraying your recognition by a too knowing gaze at the bird's eye, you may even get close enough to seize him in

Taken at Los Banos *Photo by the Author*

NEST AND EGGS OF LEAST BITTERN

the hands. The bird apparently realizes what a sorry figure he cuts on the wing, and flies only as a last resort. Even when he wants to make a reconnaissance, instead of taking a turn a-wing, he climbs carefully up some upright stalk, wren-fashion, and squints furtively over the tops of the reeds.

Amused criticism, however, turns to admiration when we note the marvelous dexterity with which the bird threads the lawless mazes of a cat-tail swamp. Now plashing softly through a shallow, now scrambling nimbly over opposing vegetation, he can soon quit dangerous territory if he will.

But the Least Bittern is a bird of the night. When evening falls, he

goes to his accustomed hunting-ground with strong, sure flight. These birds do not often wait for the game to come to them, as is the habit of that patient fisherman, the Great Blue Heron, but they move about with lowered head and outstretched neck, industriously searching for slugs, frogs, tadpoles, beetles, and their kin. Even field mice are sometimes caught by a rapid run and a flashing stroke.

These little Bitterns are not guilty of any such outlandish noises as those produced by the "bog bull." Their only notes are a low *qua*, when flushed or frightened; or a short, hoarse croak of greeting or inquiry; and during the breeding season a subdued and labored *coo, coo, coo, coo, coo*, which proceeds, without doubt, from the male bird.

They do not nest in colonies exactly, but a favorable stretch of tules or cat-tails is likely to contain several nests scattered about. We found three with three eggs each at Dos Palos on the 23rd of May, 1912, and three more near Los Baños, May 30, 1914. The nests are composed of cat-tail leaves laid flatwise, and are either built up out of the muck or shallow water to a height of a foot or more, or else lodged midway on the growing plants. In the latter case, the broken-down tops of the reeds are used as a basis, and the shallow platform thus formed is lined with green leaves and sedges, or even fine sticks. The eggs are almost equal-ended, and are of a delicate bluish white tint. The four eggs of one set which I examined were disposed in a straight row, as if accommodated to the narrow and elongated breast of the bird. According to Dr. Abbott, the youngsters when hatched are scantily covered with a pale buffy down, interspersed with white hairs as long as the bird itself. They are unusually active and vivacious, and learn to shift for themselves much sooner than the young of the tree-nesting herons.

No. 390

Wood Ibis

A. O. U. No. 188. **Mycteria americana** (Linnæus).

Synonyms.—American Wood Stork. "Colorado Turkey."

Description.—*Adult:* General color pure white; alula, wing-quills, primary-coverts, and tail black, with greenish luster; lining of wings pale rose-pink (in breeding plumage only); head and upper neck bald, the rough skin livid blue and yellowish. Bill dingy yellow; legs dull blue, blackening on toes, the partial webs yellow; iris brown. *Young birds* are dingy white, with tail and wings blackish, and the head is covered, except anteriorly, with sooty gray down-like feathers. Length of male up to 1143 (45.00); wing 482.6 (19.00); tail 152.4 (6.00); bill 228.6 (9.00); tarsus 203.2 (8.00). Female smaller.

Recognition Marks.—Goose to giant size; black-and-white plumage, swamp-haunting habits, sailing flight, powerful beak, decurved near tip, distinctive.

Nesting.—Does not breed in California. *Nests* in colonies; platform of sticks lined with moss placed in tops of bushes or high in trees. *Eggs:* 2 or 3; roughened, elongate ovate, or elliptical oval; white or, rarely, smeared with tawny olive or olive lake. Av. size 66.1 x 45.1 (2.60 x 1.77); index 68. *Season:* c. April 1st (Florida).

General Range.—Warm temperate and tropical America from the western border states, the Ohio Valley (formerly), and South Carolina, south to Argentina and Uruguay. Casually north to Montana, Wisconsin, New York, and Vermont.

Occurrence in California.—A summer visitor, of regular occurrence in the Colorado River Valley, irregular and rare in the San Diegan district, casually to San Francisco Bay, "San Joaquin Valley" (Cooper), Fresno (Tyler), and Yermo, Mohave Desert,—all probably wanderers from the South at the close of the southern breeding season.

Authorities.—**Baird** (*Tantalus loculator*), Rep. Pac. R. R. Surv., vol. ix., 1858, p. 682 (Colo. R.); *Coues*, Birds of the Northwest, 1874, p. 513 (syn., desc., habits, etc.; Colo. R.); *Law*, Condor, vol. xiv., 1912, p. 41 (Long Beach, feeding habits, etc.); *Cooke*, U. S. Dept. Agric., Biol. Surv. Bull., no. 45, 1913, p. 22, map (distr. and migr.); *Grinnell, Bryant, and Storer*, Game Birds Calif., 1918, p. 266 (desc., occurrence, habits, etc.); *Howell*, Condor, vol. xxii., 1920, p. 75 (Imperial Valley, winter).

OF THE GREAT family of Storks, rich in species, and so familiar to our Old World friends, there are only three representatives in the New World. These have their center of dispersion in South America. One, the Maguari Stork (*Euxenura maguari*), is confined to that continent; the Jabiru (*Jabiru mycteria*) has occurred as far north as central Texas; while the third species, the Wood Ibis, has been long established as a resident in the Gulf States and in Mexico. This last-named species is not supposed to breed nearer our borders than some unknown point in western Mexico; but it indulges a propensity, common to several related families of the "stork-like birds," of taking a summer vacation in the North at the close of the breeding season. It occurs, therefore, regularly in summer about the lagoons and overflow areas of the lower Colorado Valley, and adventures occasionally, wherever standing water is found, into southern California. A notable invasion of the Los Angeles sloughs occurred in the summer of 1911, when as many as twenty-five birds were seen in a single flock. Dr. Cooper records their appearance at Saticoy in June, 1872, and 1873, and says:[1] "They doubtless breed in San Joaquin Valley [Erroneous, of course; Dr. Cooper was often very naive in his guesses as to breeding habits], as some are shot there every year. After leaving the nest the broods of young wander, and I have several times seen them flying at midday in wide circles high over San Francisco Bay. . . . One was shot some years since at San Leandro near Haywards, having incautiously lighted on a shade tree by the roadside; and these young birds always seem destitute of that natural fear of man so necessary to their safety."

[1] Auk, Vol. IV., 1887, p. 90.

In view of the present scarcity of this, the only American stork-like bird which reaches our borders, and of its very manifest dependence upon a southern dispersion center, it becomes of interest to note that bones of the Jabiru (*J. mycteria*) have been found in the Rancho La Brea beds near Los Angeles, and that this same fertile source furnishes specimens of an entirely new species, a true stork, *Ciconia maltha* Miller.

The storks are rather stupid birds, perhaps because they are such gluttons. They are, however, shrewd enough in procuring food, if Audubon's account be correct. He says that a large company of them will enter a shallow pool of water and stir up the mud by dancing about, until the frenzied fish, frogs, and young alligators, venturing too near the surface, are rapidly knocked on the head in turn by the birds' powerful beaks, and there left to float until the drive is completed. Then the birds gorge themselves, and stand about the margin of the pond in sated rows while digestion wrestles with its task. Recent observers have not had opportunity to note these wholesale methods of slaughter. Mr. J. E. Law, who took a specimen at Dominguez Station, near Long Beach, found the bird standing knee-deep in muddy water, where it would insert its bill nearly to the eyes, and then, standing on one foot, would appear to be stirring up the water with the other.

It was Audubon, too, who would account for the well-known habit which these birds have of mounting into the air and soaring about at great heights during the later hours of the morning, by calling it an aid to digestion—a sort of morning constitutional, necessary to well-fed burghers who would avoid gout. Whatever may induce these storks to play the buzzard for a time each day, they certainly present a pleasing and impressive spectacle, as, with plumage rendered striking by reason of its contrasting blacks and whites, they wheel aloft in majestic circles whose dizzy and distant mazes test the eyesight.

No. 391

White-faced Glossy Ibis

A. O. U. No. 187. **Plegadis guarauna** (Linnæus).

Synonyms.—"Water Turkey." Swamp Turkey. Black Curlew.

Description.—*Adults:* General color rich purplish chestnut, purest on neck, lesser wing-coverts, and underparts (except lining of wings and crissum), the purple lustrous and dominant on middle of back and tertials, heavily admixed with greenish black on tail-coverts both upper and under, showing violet reflections on crown, middle wing-coverts, axillars, etc.; remainder of wings, including quills and tail, shiny bronzy

green, golden green, and bottle green—surpassingly beautiful. Bill, curved downward, slaty blue, reddening on tip; irides blood-red; lores and eyelids naked, lake red,—this area and base of bill above and below surrounded by a narrow border of white feathers, the "face"; feet and legs dark wine-purple. *Immature:* Chiefly sooty brown, finely streaked on head and neck all around with white, faintly lustrous on underparts, definitely bronzy greenish on wings (including lining), and back. The plumage is progressively invaded by lustrous purple, but the streaked head is the last youthful character to give way. "*Young, first plumage* (with traces of down still): Remarkably lustrous. Plumage entirely green; legs black; bill blackish, irregularly blotched or regularly banded with pinkish white." *Downy young:* Uniform blackish, with whitish bill. Length of adult male: 558.8-609.6 (22.00-24.00). Av. of 6 Calif. males: length (skins) 587 (23.10); wing 276 (10.90); bill 136 (5.36); tarsus 103 (4.06). Female smaller.

Recognition Marks.—Gull size; dark plumage (appearing black at distance) distinctive for birds of this association; blackish bill, strongly decurved.

Nesting.—*Nests* in colonies in reeds; composed of broken-down reeds attached to living ones; well built and deeply cupped. *Eggs:* 3 or 4; niagara green or light niagara green. Av. size 50.8 x 35.56 (2.00 x 1.40). *Season:* May.

General Range.—Temperate and tropical America from southern Oregon, Arizona, Texas and Florida south to the Straits of Magellan. Breeds southward from the northern limits of its range, and has wandered to British Columbia, Wyoming, and Nebraska.

Distribution in California.—Common migrant practically throughout the State, except in the northwest coastal section; summer resident, breeding in suitable swampy areas, sometimes sporadically, as at San Jacinto (Mystic) Lake, in Riverside County, regularly in the flooded areas tributary to Los Baños, formerly at least near Los Angeles, and at Escondido. Less common record stations of occurrence are Lower Klamath Lake (Bryant), Goose Lake, June 10, 1912 (Author), Bishop, Inyo County, May 21, 1919 (Author). Winters casually in the San Diegan district and even to Los Baños (Grinnell) and Stockton (Belding).

Authorities.—Gambel (*Falcinellus cayanensis*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 223 (Los Angeles); *Chapman*, Camps and Cruises of an Ornithologist, 1908, p. 292 (Los Baños, habits); *Willett and Jay*, Condor, vol. xiii., 1911, p. 159, figs. (San Jacinto Lake, desc. nest and eggs, etc.); *Dawson*, Condor, vol. xvi., 1914, p. 8, figs. (Santa Barbara; actions).

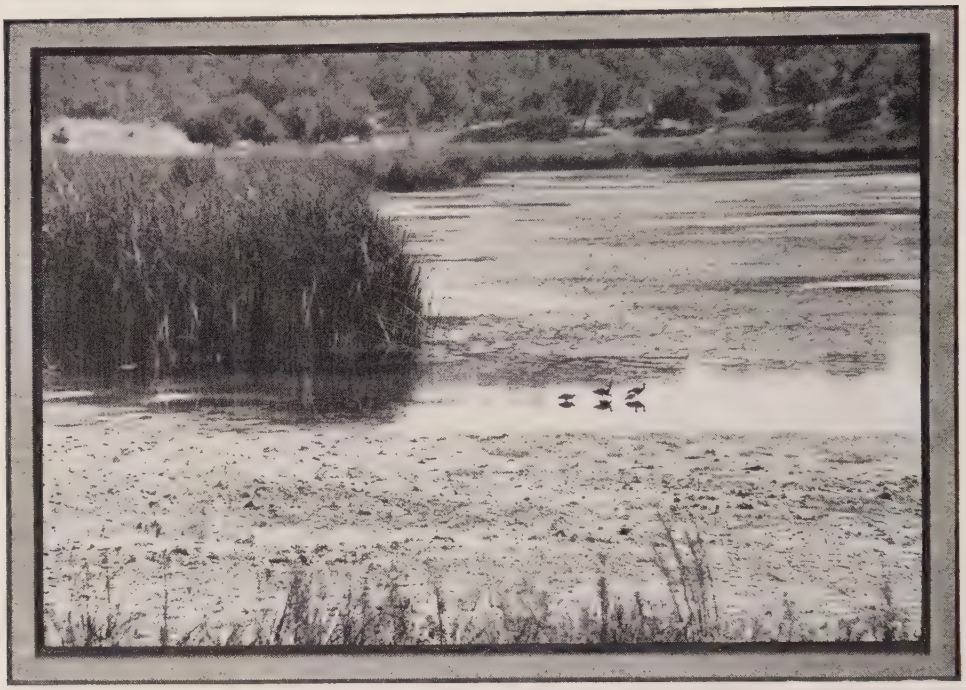
Taken at Sandyland

From a gum tissue print by Fedora E. D. Brown Negative by the Author

AN EGYPTIAN FRIEZE

1925

The White-faced Glossy Ibis



Taken on Laguna Blanca *Photo by the Author*

A DISTANT VIEW

THE NAME "water turkey" has been preëmpted by the Anhinga (*Anhinga anhinga*), but there is no law to prevent our likening the rich bronzes of this bird's plumage to that of our barnyard favorite, the turkey. The sportsman, deceived by the appearance of size and by the decurved beak, has called him Black Curlew, and has added him piously and numerously to an already overweighted bag. But the bird is not black, only rich bronzy and chestnut; it is not a Curlew—not within a thousand miles; it is not a game-bird, for it is decidedly un-kosher. The joke, then, has been upon Californians, who alone of all flesh-eating mortals have ever rated this long-billed, worm-eating, shag-on-stilts as "game."

The Glossy Ibis should be regarded solely as a work of art, a decorative motif in bronze, made animate by the Artist Supreme and loaned to us for the ornamentation of wayside pools, low horizons, and interminable swamps. The Egyptians felt this decorative appeal, and by way of heading off the sacrileges of hunger, made a god of the bird and declared its flesh taboo. *Ibis religiosa* received abundant honors at the hands of the Egyptians; but art would have been the gainer if the task of immortalizing the bird had fallen to the Japanese instead. Surely those masters of art could have cast the birds in a bronze more enduring than their own!

1926

Damn your guns anyhow! From arquebuses to Big Berthas they have left an unbroken record of desolation. "Arms" they are, indeed, extensions of the human arms, but only energized extensions of lust and malice and cruelty; and these had weapons enough before. At their best, and plied in defense of loved ones, guns have only invited counter-blasts as baleful. At their worst, and normally, they have been instruments of ruthlessness which have left the world forever impoverished. Where are

Taken on Laguna Blanca *Photo by the Author*

PREOCCUPATION

the Passenger Pigeons? Ask the guns. Where are the Heath Hens and the Carolina Paroquets and the Eskimo Curlews and the Whooping Cranes and the Trumpeter Swans? Guns! Guns!! Guns!!! Damn the guns!

The first vision of Ibises the author ever had was during the spring migrations at Santa Barbara. A dip in the road, where the tongue of an estero crossed, was suddenly lighted up by a burst of black forms,—a flock of land-locked cormorants, I thought momentarily. But the "shags" were too graceful by half as they breasted the strong wind; and as they hovered questingly, in exquisite syncopation of flight, my recovering senses grasped the significance of wine-red reflections. White-faced Glossy Ibises! What splendid birds they are! A score of them, a very

Taken on Laguna Blanca *Photo by the Author*

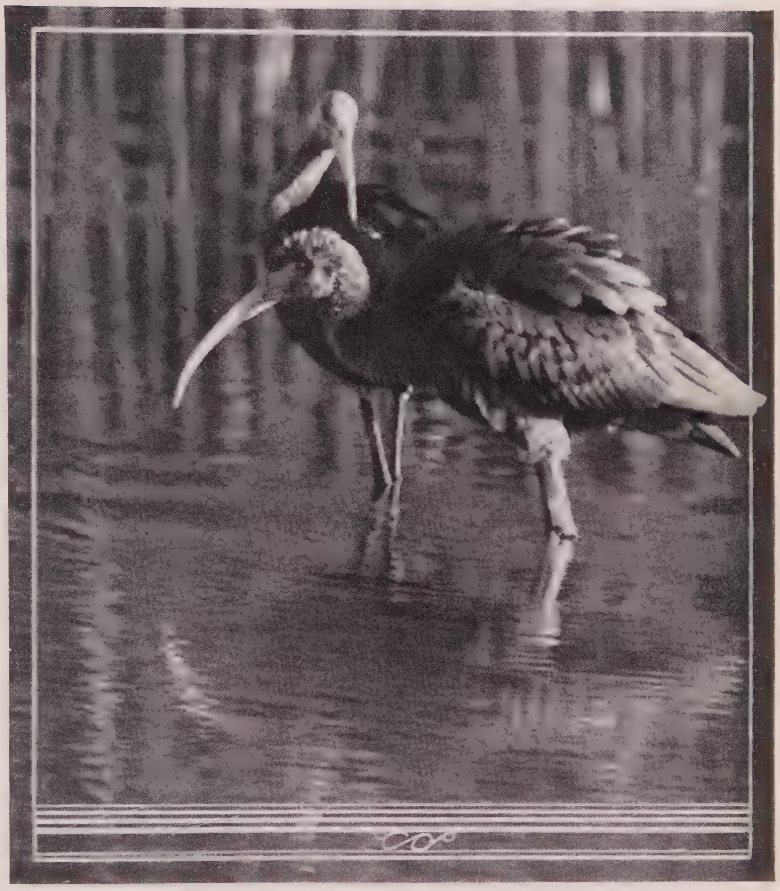
TUT-ANKH-AMEN MOTIFS

1928

vision of the elder day; whereas all modernity is one gibbering sparrow! I stopped the motor instantly; and, reassured, the Ibises settled back into the wet grass, and resumed immediately their search for food. Here, again, they seemed the very embodiments of grace, as they turned and twisted, or probed for insects in the soft mud, or reared their sinuous necks for a moment of inspection. And what marvels of color! reds and greens and purples, which resolve into black withd istance. "More, anon, you beauties; I'll track you to your haunts! Just now my plates are gone; the wind is blowing a gale; and the motor is urging homeward. I will leave you to your wayside fare."

Ah, well, I have seen them since, hundreds of them—not thousands, as formerly—in migrations, or ranging over their characteristic haunts in the flooded sections of Los Baños. The birds breed annually somewhere within a radius of twenty miles of the town of Dos Palos; but as the flood conditions

are never twice alike, the colony shifts from year to year, and I have not been so fortunate as to find it in three trials. The birds are said to build in loose colonial fashion, several hundred pairs in an area of forty acres, selecting for the purpose the least accessible mazes of the "tule" or giant *Scirpus*. The nests are merely platforms of broken-down tules, augmented, or not, with some interlacing of loose stems. The eggs, three or four in number, are of a rich dark bluish green, quite the handsomest in the entire Heron order. Their distinctness of type probably entitles the owners to separate family rank, the *Plegadidæ*. Indeed, viewed oölogically, the Spoonbills, family *Plataleidæ*, stand in nearer relationship to the *Ibididæ* proper than do either to the *Plegadidæ*, the Bronze Ibises.



Taken on Laguna Blanca *Photo by the Author*

A STUDY IN BRONZE

The chief interest of the nesting region attaches to the appearance and spectacular flight of the wide-ranging groups of foraging birds. Pairs or squads or small platoons are likely to be flushed anywhere within ten miles of the central rookery. At such times the self-conscious birds vault into the air with startled cries, not unlike the grunting of pigs, *moik*, or *oigh, oigh*. A flying company, coming upon observers in ambush, will flinch or corkscrew most picturesquely (not to say pathetically) each for himself. But left to themselves, they fall into line behind some trusted leader, and move off at a very businesslike pace. In my opinion few sights in the marshes equal the vision of a passing company of Bronze Ibises, timid mementoes of the elder magnificence.

1929

The White-faced Glossy Ibis

In order to explain the accompanying photos, which represent a rather unusual opportunity, I venture to quote quite literally from my notebook: "White-faced Glossy Ibis. Laguna Blanca. Sept. 4, 1913. If this be a dream, do not wake me. A few times before I have said that,

Taken on Laguna Blanca *Photo by the Author*

THE SOLEMN ORDEAL OF A BATH

in a thrilling hour of bird photography, but never, save with the Surf Birds, more fervently than today. But I am spoiling my story.

"As Will and I were rolling around Laguna Blanca in the auto, I spied a flock of five White-faced Glossy Ibises, evidently recently disturbed, and now flying about the lake. They passed near us in a graceful line, but scouted out the country very thoroughly before they finally lighted on the shore near the boat-landing. I rigged up the camera and hurried over, frightening as I did so some ducks, a few Anthony Herons, and finally a Great Blue Heron. With or because of the last-named, a dozen Ibises rose and probably left the lake, but they were not my five. These I presently surprised while they were still at rest, but they sprang

into the air before I could level on them. They circled over the lake in rapid, graceful flight, passing several times within easy range of the camera. I retired speedily to the machine, but the Ibises were thoroughly aroused, and rose higher and higher and flew in ever wider circles. Several times they pitched down a hundred feet or so on a sudden impulse, but as surely took fresh alarm. Seeing they were likely to desert the locality as their fellows had done, I started the machine and drove a half mile or so away from the lake. This ruse availed, for on returning and sweeping around the lake boulevard, we found them knee-deep in water and forty feet offshore in a gloriously open place.

"Passing by as though unheeding, I soon returned prepared, stopped the machine suddenly, then swung on them instantly at 150 feet. They leaped from the water at the sound of the shutter, but settled back almost in their tracks. Again the shutter roared, and again they leaped clear of the water. Our machine was not only in the dead open, but it was perched on the skyline a dozen feet above the birds.

"Then, although it seemed a perfectly desperate undertaking, I loaded my pouch with plate-holders and set out to stalk the birds directly. Since there was absolutely no intervening cover, I did not even bother to crouch, but I did approach *very* slowly. Ever and anon I 'shot,' and always the quarry started; but they did not leap from the water, nor did they attempt to pull away. By the time I had cut the distance in two, I had used up my relay of plates and returned for more. I determined to save up for close shots, but such opportunities are over-tempting. The last plate went when I was within nine steps of the water's edge and still 50 feet distant from the birds. It was the last I had, so by way of bravado, I crept to the water's edge, within 35 feet. The birds regarded me with mild curiosity, or pecked at flies, or dozed. Once, when I was nearly back to the machine, another passing auto frightened the birds so that they took a turn around the pond; but they soon returned to the same spot. Although it was a well nigh hopeless undertaking, we motored back to the house three miles away, reloaded two dozen plate-holders, and returned to the charge, just one hour later, 4 p. m. The blessed birds were there, *asleep*. I began on them where I had left off, namely at the water's edge, but soon waded in ten feet nearer. The Ibises were alert now, but they did not retreat. Ever and again one of their number gave vent to an uneasy trumpeting croak. I took care not to *look* at the birds, save through the camera, and even so I was too excited to look long. It was punch and roar and change. The birds now paid not the slightest heed to the noise, nor indeed to my professional motions. I had been adopted, and the tired birds resumed their nap. I returned now after ten shots to bring up all the plates I had. It was a glorious

sight at 25 feet. The birds got into most ungainly, graceful postures,—a crossed leg, an open beak, or a lifted wing; and as often as they broke the peace, I sprung the shutter. Finally, alas, I forced myself forward. Five steps it was to be; and at the fifth step, as I started to lift my head, there was a sudden soft brush of wings. I had passed the limit of forbearance, and my long-suffering hosts had fled—fled this time in high dudgeon, for they rose and rose till at the height of half a mile they passed from sight seaward. But oh, it was heavenly while it lasted!"

No. 392

Roseate Spoon-bill

A. O. U. No. 183. **Ajaja ajaja** (Linnæus).

Synonym.—Flamingo (name based on rosy plumage and entirely erroneous).

Description.—*Adult:* General color rosy red, paling to white on upper back and breast, definitely white on neck, intensifying to carmine on lower fore-neck, upper and under tail-coverts and lesser wing-coverts; shafts of wing-quills and rectrices carmine; patch on side of breast and webbing of tail dingy yellow. Head bare, the skin orange-yellow, greenish, and black; the bill likewise highly variegated; feet and legs lake red, the claws dusky; irides carmine. *Immature birds* have the head chiefly white-feathered and the body-plumage, basically white, is increasingly flushed with rosy with advancing age; border of wing extensively dusky, this color persisting last on tips of primaries. Length of male up to 889 (35.00); wing 400 (15.75); tail 120.6 (4.75); bill 177.8 (7.00) or less, its spoon 57.15 (2.25) across; tarsus 107.95 (4.25). Female smaller—length up to 762 (30.00).

Recognition Marks.—Eagle size; rosy plumage, and beak broadly flattened at tip distinctive.

Nesting.—Does not breed in California. *Nest:* A frail platform of sticks, placed at moderate heights in bush or tree. *Eggs:* 3 or 4; elongate ovate or elliptical ovate; dull white or pale greenish, spotted and blotched with tawny olive or dresden brown, or washed and smeared with cream-buff. Av. size 68.85 x 44.45 (2.75 x 1.75). *Season:* May 15–June 15.

General Range.—Warm temperate North America and South America. Found from the Gulf States south to Patagonia; casually (or formerly) north to Pennsylvania, southern Indiana, Wisconsin, Kansas, Colorado, and California.

Occurrence in California.—[No specimens extant, but status based on creditable sight records.] A summer visitor wandering from the South at the close of the breeding season. Seen by Dr. Gambel on the coast as far as San Francisco in the summer of 1849. Seen by R. B. Herron near San Bernardino, June 20, 1903, and by H. E. Wilder at Riverside in 1902 (Stephens).

Authorities.—**Gambel** (*Platea mexicana*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 222 (Calif.); *Stephens*, Condor, vol. vi., 1904, p. 139 (San Bernardino and Riverside); *Grinnell, Bryant, and Storer*, Game Birds Calif., 1918, p. 262.

THE WORD Flamingo has so impressed itself upon the popular attention that every big bird of a ruddy, not to say lurid, complexion, reported in from our extreme southeastern border, comes to us as a "sure enough Flamingo." The Flamingo proper, which is chiefly confined to the coasts bordering upon middle American oceans, has little upon our friend, *Ajaja*, from the west coast of Mexico, either in beauty of plumage or in eccentricity of appearance, especially that of the beak; but when we recall that *Phœnicopterus* is also a lamellirostral grallator of the Order *Odontoglossæ*, it is time for us to admit our presumption, and to beat a hasty retreat. *Ja! Ja! Ajaja ajaja* is nothing but a Spoonbill.

If we could actually control our silly desire to kill something, there is no reason why these really splendid birds, which occasionally wander north from their breeding grounds near Guaymas, should not be led to accept our hospitality, and to establish themselves permanently in the Colorado Valley. But no; they are big and beautiful. Bang! Bang!!

No. 393

Red-billed Tropic-bird

A. O. U. No. 112. **Phaëthon æthereus** (Linnæus).

Synonyms.—Catesby's Tropic-bird. Bo's'n-bird. Marlin-spike.

Description.—*Adult:* "General color white; a black band bordering the sides of the head passes through the eye and terminates in a crescent-shaped mark above the gape; back and sides of the neck, back, rump, upper tail-coverts, scapulars, and most of the lesser and median wing-coverts barred with black; the five outermost primaries with the outer web and part of the inner web black, only the extreme tip being white; some apparently fully adult specimens have the third quill partially, and the fourth and fifth entirely margined on the outer web with white; the remaining primary quills with a black median stripe extending to within about an inch of the tip; outer primary coverts, innermost secondaries and their coverts mostly black margined with white; long flank-feathers with blotched grayish black bars; outer tail feathers with a few irregular black markings near the shaft; the upper surface of the shafts black, white at the extremity. Tail composed of 14 feathers. Iris black; tarsi and upper part of toes yellow, rest of toes and claws black; bill bright coral-red" (Ogilvie-Grant). Length 762-914.4 (30.00-36.00), of which central pair of rectrices 355.6-457.2 (14.00-18.00); wing about 304.8 (12.00); bill 68 (2.50); tarsus 25.4 (1.00).

Nesting.—Does not breed in California. *Nest:* A careless layer of grass or seaweed, placed in hole or cranny of cliff or on ground in shelter of bush, or, more rarely, in hollow tree. *Egg:* Single; white or pale vinaceous as to ground, heavily sprinkled or spotted or clouded with brownish red (Hessian brown to hæmatite red). Av. size 61 x 43 (2.40 x 1.69). *Season:* In general, throughout the year; but locally determined and constant.

The Red-billed Tropic-bird

General Range.—Seas and coasts of tropical America. Breeds in Lesser Antilles and from coast of Peru north to about Latitude 28°; ranges north regularly to Cape Colnett, Lower California; accidental in California and on Newfoundland Banks.

Range in California.—Accidental in channel between Long Beach and Santa Catalina Island; one record: by Capt. W. H. Graves, August, 1916.

Authorities.—W. E. Bryant, Proc. Calif. Acad. Sci., ser. 2, vol. ii., 1889, p. 86 (a skull said to have been found on the coast of Marin Co.); *Grinnell,* Pac. Coast Avifauna, no. 11, 1915, p. 176 (in "Hypothetical List," birds of Calif.); *Law,* Condor, vol. xxi., 1919, p. 88 (between Long Beach and Catalina Id., Aug., 1916, one spec.); *Bent,* U. S. Nat. Mus., Bull. no. 121, 1922, p. 187, pls. (life hist.; desc. nest and eggs, etc.).

ALL THINGS come to him who waits; and the watchers by the sea are those especially favored by rare sights. The shore-line is nature's most ancient highway; and sooner or later every speed-king of the northern Tropics may be expected to take a turn up that enticing highway, at least as far as San Pedro. Witness the northern wanderings of the Elegant Tern and the Man-o'-war-bird; and now the Red-billed Tropic-bird. This last occurrence had been freely predicted by Anthony[1] and Grinnell,[2] for a previous record of farthest north had been made from Cape Colnett, Baja California, only 200 miles away. The circumstance of the capture of a specimen in August, 1916, by Captain W. H. Graves, of Long Beach, have been detailed by J. Eugene Law.[3] A solitary bird, perhaps the very one seen a day or so before, was shot, as it sailed overhead, from a pleasure launch in the channel about midway between Long Beach and Catalina Island. This was eventually made into a "stuffed" specimen, and graces (or did at last accounts) a south window of the Long Beach Chamber of Commerce. We mention "south" with invidious intent; because continued exposure to the sun bleaches dark plumage to a ghastly isabelline hue.

The Tropic-birds are, as their name implies, chiefly confined to the Tropic zone. They are more or less gregarious, especially at the breeding season. In appearance not unlike an exaggerated tern, they differ in having the central pair of tail-feathers excessively elongated—hence, the name "Marlin-spike" or "Bo's'n-bird." In their quest for food, which they obtain by plunging from the air, tern-fashion, the birds fare far out to sea, sometimes hundreds of miles. Their flight is powerful, but it has the appearance of being labored, because the wings are continually flapped, never held rigid for soaring and for rest, as in the case of that passed master of flight, the Man-o'-war-bird. This necessitates occasional rest upon the surface of the ocean; but if this is roughened by a storm, the buffeted birds are glad to take refuge on the masts or taffrails of passing

[1] Proc. Calif. Acad. Sci., 2nd ser., II., p. 86.
[2] Pac. Coast Avifauna, No. 11, 1915, pp. 176, 177.
[3] Condor, Vol. XXI., March, 1919, p. 88.

ships. Their feet and legs are absurdly inadequate for progress on shore; and if obliged to walk they spread their wings and waddle about like cowboys in tight boots.

The Red-billed Tropic-birds were studied by the Academy Expedition to the Galapagos Islands in 1905-1906; and I cull the following paragraphs from the account of Mr. E. W. Gifford:[1]

"Red-billed Tropic-birds could be recognized at almost any time by their cry, which is long and shrill and consists of a lot of short high rasping notes given in quick succession. Birds flying about the nesting place often gave it, and birds disturbed on the nest also gave it. The young when taken from the nest uttered the same cry; and I have even heard a young bird only a day or so old give three or four notes of it when handled.

"The nesting places were usually holes in cliffs and hillsides in the vicinity of the sea. As a rule the single egg was laid at the end of a short burrow; when such was the case no eggs or young were found. One bird which I disturbed on its nest was in a good light so that I could see it. It was sitting on its egg with wings drooping at its sides, feathers raised, and every feature showing rage at my intrusion."

No. 394

Water Turkey

A. O. U. No. 118. **Anhinga anhinga** (Linnæus).

Synonyms.—American Darter. Black Darter. American Anhinga. Snake-bird.

Description.—*Adult male:* General color black; glossy greenish black on head, neck, and body; wings and tail duller; median and greater wing-coverts chiefly silver-gray; the lesser wing-coverts spotted, and the scapulars striped with silver-gray; tail broadly tipped with brownish buffy; the central pair of rectrices finely crinkled on outer webs. In breeding plumage the hind-neck boasts a mane of black feathers, bounded on either side by scattered filamentous plumes of purplish white or brownish ash. "In both sexes iris red, ranging from carmine to pink; bill yellow, with dusky greenish ridge and tip; bare skin about eyes lurid green; sac orange; feet dusky olive and yellow; webs yellow; claws blackish." *Adult female:* Similar to adult male, but head and neck chiefly dull buffy mingled with darker (nearly dusky above), clearing on jugulum and breast to pure light buff; general body plumage black but silvery buff appearing as tiny spots; on upper back occupies central portions of elongated scapulars, subterminal portions of lesser wing-coverts, and entire exposed surface of greater coverts; tip of tail also brownish buffy, shading for an inch or so; line of junction between buff and black of breast, narrowly, auburn; central pair of tail-feathers finely

[1] Proc. Calif. Acad. Sci., 4th Series, Vol. II., pt. I., 1913, p. 105.

crinkled on outer webs. *Young birds* somewhat resemble adult female, but are dull gray below and lack the silver-gray markings of scapulars, etc.; flight-feathers more or less margined with whitish toward tips; tail-feathers not crinkled. Length of adult about 914.4 (36.00); wing 345.4 (13.60); tail 265.5 (10.45); bill 34.3 (1.35); tarsus 86.4 (3.40).

Recognition Marks.—Gull size as to body, elongated neck with small head, "scarcely larger"; silver-gray markings on scapulars, etc., distinctive; swamp-loving habits.

Nesting.—Not known to breed in California, but probably does so. In colonies. *Nest:* A platform of sticks placed in bushes over swamp water or sluggish streams. *Eggs:* 3 to 5; light bluish green, overlaid with chalky accretion, not certainly distinguishable from those of Cormorants, but averaging shorter. Av. size 54.6 x 34.3 (2.15 x 1.35). *Season:* March–April; one brood.

General Range.—Tropical and subtropical America, from the lower Colorado River (in Arizona, California, and Mexico), Texas, southern Illinois, and North Carolina, south to southeastern Brazil.

Occurrence in California.—Observed by Allan Brooks and the author above Laguna Dam, Potholes, Calif., Feb. 9 and 12, 1913. Probably of regular occurrence on the Colorado River up to that point.

Authorities.—Brooks, Condor, vol. xv., 1913, p. 182 (Calif. side of Colo. R. at Potholes, Imperial Co.); *Bent,* U. S. Nat. Mus., Bull. no. 121, 1922, p. 229, pls. (life hist.; desc. nest and eggs, etc.).

WE CANNOT adduce a better proof of the variety of Californian bird-life than that furnished by the occurrence of this tropical or subtropical fowl on our southern border, in contrast, say, with the Sierra Nevada Rosy Finch, breeding at 14,000 feet on Mt. Whitney, or the Great Gray Owl in Siskiyou County. The Amazon is nearer the center of the Snake-bird's distribution, but it follows the oozy depths of sun-warmed waters into Florida and Texas, and latterly has made its appearance on the Colorado River, first on the Arizona side, at Yuma, in the winter of 1905-6, and then at Potholes, California, where it was recognized by Mr. Allan Brooks and the writer in February, 1913.

The building of the Laguna Dam at Potholes has created slack water for several miles upstream; and here in the dying timber Egrets and Farallon Cormorants make their homes. Among the latter we descried first one and then two of the smaller and more nimble Snake-birds. In striking contrast with the ungainly Shags, they described small circles in the air with a quick flap, flap, flap, and sail; and when they lighted on some dead limb overhanging the water, they did so with easy assurance and grace.

These Darters are among the most expert of fresh-water divers. When surprised they pitch head foremost into and under the water, leaving scarcely a ripple behind. If they reappear a hundred yards away, it is only to exhibit a snake-like neck surmounted by a head so compressed as scarcely to disturb the general scheme. Fish are secured by direct pursuit, and so easy is the game that the bird can afford to spend a good deal of time ashore, or rather a-stub, basking in the tropical sunshine.

1936

No. 395

Farallon Cormorant

A. O. U. No. 120c. **Phalacrocorax auritus albociliatus** Ridgway.

Synonyms.—Western Double-crested Cormorant. California Cormorant. Shag.

Description.—*Adults in breeding plumage:* General color glossy greenish black, the back and wings slaty brown, each feather bordered narrowly with greenish black; a tuft of narrow filamentous feathers on each side of crown over and behind eye, all black or all white or mixed black and white or wanting; tail of *twelve* feathers. Bill yellow, blackening on culmen; gular sac and lores orange-yellow; eyelids and lining of mouth lived blue; irides nile green; feet black. *Adults in winter:* Without crests; less glossy; and colors of soft parts paler. *Young male* (2nd year?): Head, neck, and forebreast grayish brown, lighter below and on sides; darker on crown and behind; remaining underparts, lower back, etc., rich dark brown; back and wings much as in adult; gular patch yellowish. *Young female* (2nd year?) and *1st year birds of both sexes:* Like preceding but still lighter; extensively brownish white below; back and wings hoary grayish brown bordered by lighter brown (on scapulars and wing-coverts) and brownish black. Length (av. of 10 California specimens from various localities): 778 (31.02); wing 332 (13.07); tail 160 (6.30); bill 58.8 (2.31); tarsus 66.9 (2.63).

Recognition Marks.—Eagle size; black plumage; orange gular area best field mark for species, birds of the year appearing whitish below.

Nesting.—In colonies. *Nest:* A bulky structure of weathered sticks, slightly hollowed and lined with bark, grass, or other soft materials; placed in trees (dead mesquite), or on ground in commanding position on islet. *Eggs:* 3 to 5, 7 of record; elliptical ovate or elongate ovate, pale bluish green, pale niagara green, overlaid wholly and smoothly or partially and roughly by white calcareous layer. Av. size 62.5 x 41 (2.46 x 1.61); index 65.6. *Season:* c. February 1st (Salton Sea), March, April, May, according to latitude; one brood.

Range of *Phalacrocorax auritus.*—North America, breeding from southern Alaska, central Saskatchewan, southern Keewatin, and Newfoundland, south to Honduras and the Socorro Islands; retiring from northern portions of range in winter, in the East as far as North Carolina.

Range of *P. a. albociliatus.*—The southwestern coastal district of the United States and Lower California. Breeds both coastwise and interiorly from Oregon and western Nevada through California to Cape San Lucas and the Socorro Islands. Retires from colder interior sections in winter. Casual (?) in Utah.

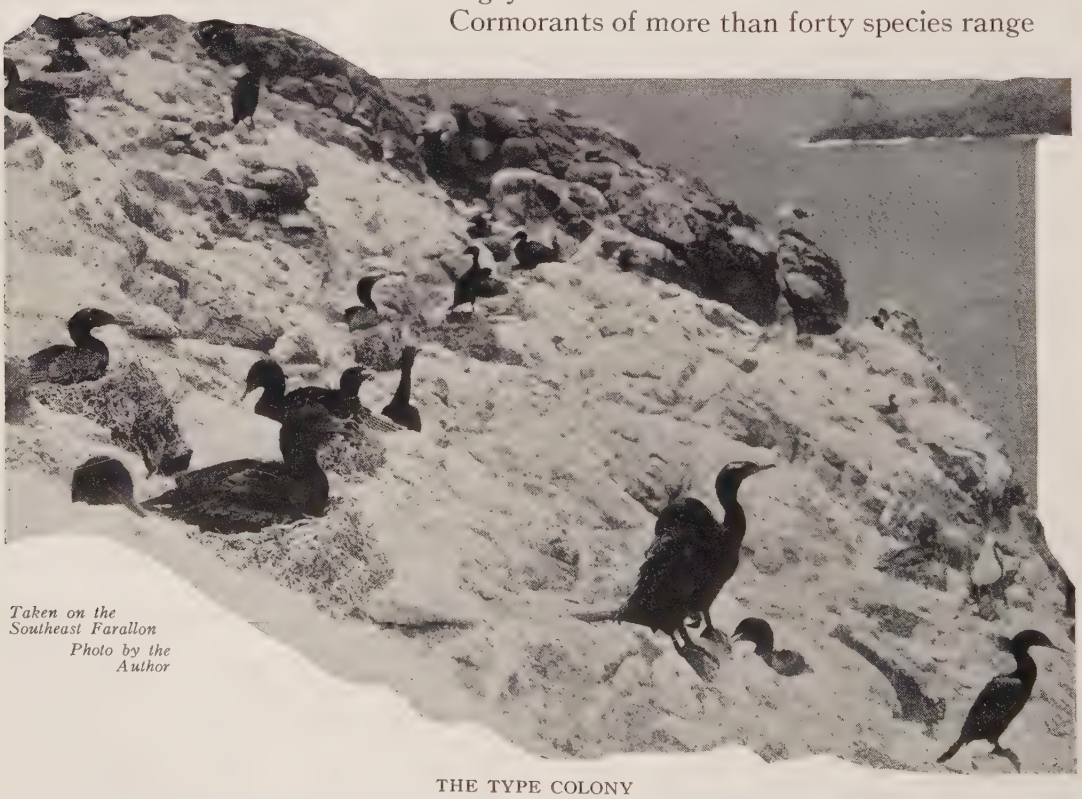
Distribution in California.—Common resident both coastwise and upon the larger lakes. Wanders freely up rivers and estuaries and appears at odd places upon smaller reservoirs and ponds. Numbers considerably augmented in winter below Point Conception. Definite breeding stations at Rhett Lake, Clear Lake (Lake Co.), Eagle Lake, Tulare Lake, Buena Vista Lake, and Salton Sea, and on the coasts of the Farallons, Seal Rocks (in 1912), Prince Islet (off San Miguel), Scorpion Harbor rocks, Santa Cruz Island, Anacapa Island, Santa Barbara Island, and Ship Rock near Santa Catalina.

The Farallon Cormorant

Authorities.—Gambel (*Carbo dilophus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 227 (Calif.); *Ridgway*, Proc. Biol. Soc. Wash., vol. ii., 1884, p. 94 (*Phalacrocorax dilophus albociliatus*, new subspecies; type locality, Farallon Ids.); *Ray*, Auk, vol. xxi., 1904, p. 436, pl. (Farallon Id., breeding; habits); *Grinnell*, Condor, vol. x., 1908, p. 185, figs. (Salton Sea; desc. of breeding colony); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 37 (s. Calif. Ids.).

LANDSMEN are slow to realize the fertility of the sea. Its great expanse is so little broken at the surface by the irruption of life that we cannot easily comprehend the vast and varied resources either of its depths or of its teeming shallows. The Gulls, the Gooneys, and the Man-o'-war-birds serve to heighten this superficial impression which we get of ocean's scanty fare, for we find them traveling a league for a bite, and a day's journey for a full meal. Not so, however, with the Cormorant. Here is a bird, the very symbol of voracity, built to seize and swallow and speedily digest. When we see him and know his ways, we realize the long-suffering of the great mother, and the boundless provision she has made for her hungry children.

Cormorants of more than forty species range



Taken on the Southeast Farallon
Photo by the Author

THE TYPE COLONY

IT WAS FROM SPECIMENS TAKEN IN THIS ROOKERY THAT THE RACE, *albociliatus*, WAS DESCRIBED BY RIDGWAY

1938

Taken on the southeast Farallon *Photo by the Author*

A BRAVE MOTHER

THIS BROODING FEMALE "FARALLON" WAS PHOTOGRAPHED AT A RANGE OF 2½ FEET

along the hundred thousand leagues of earth's shore-line, well distributed in all save Arctic and Antarctic waters; and they constitute the mightiest race of fishers ever known, save those born of the teeming waters themselves. The piscatorial peculations of men are as a dot beside their unceasing pillage. One almost hesitates to admit what these ravages

Taken in Washington *Photo by the Author*

A SHAGGY ROCK

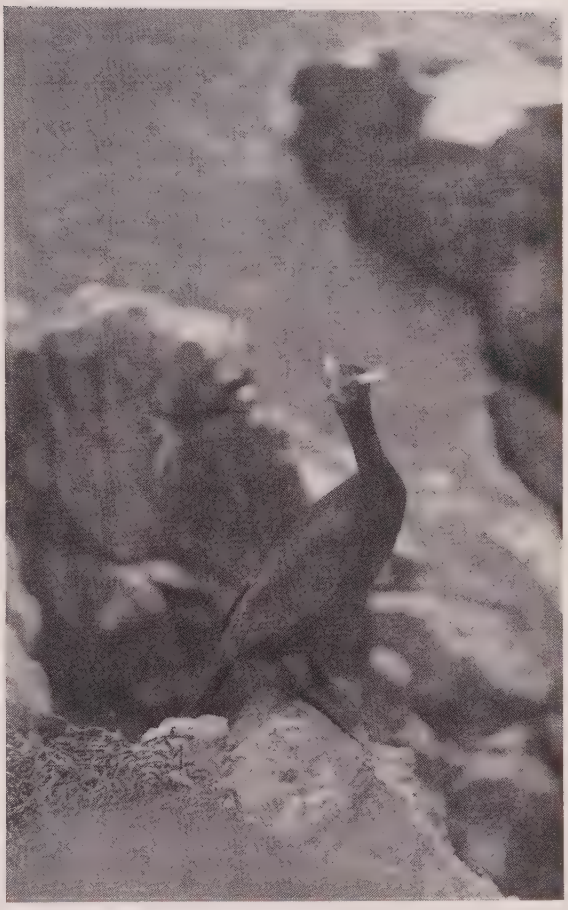
really are, for fear of drawing down the wrath of our Italian friends who have (upon what grounds I know not) arrogated to themselves the right to all the fishes which swim in the sea. But here is a concrete example from foreign waters. Mr. Howard W. Wright, visiting San Martir Island, off the coast of Lower California, in July, 1913, estimated its shag population (chiefly *P. a. albociliatus*) at 1,800,000, allowing three young to each pair of adults.[1] "We became very much interested in estimating the amount of fish these birds consumed per day. We noted the amount each young cormorant threw up when molested, and found on several occasions a bunch of fish as big as a man's two fists. This mass was generally composed of surf-fish, smelt and sardines. I have heard other estimates of from three to six sardines a day for a cormorant, so I consider a half pound of fish a day very conservative [undoubtedly *too* conservative—a pound a day would be nearer right, would it not?]. Allowing half a pound of fish a day for each of 1,800,000 birds, the entire population would consume about four hundred tons a day, or about ten thousand tons a month! The fishing was done in San Quentin Bay exclusively, but in that bay and in Hassler's Cove, on the island, fish were found very plentiful, and always hungry, showing that the birds do not seriously lessen the number of fish."

Taken on Anacapa Island *Photo by Donald R. Dickey*

NEST AND EGGS OF FARALLON CORMORANT

[1] Reported by Mr. Wright in "The Condor," Vol. XV., Nov., 1913, pp. 207-210.

The name Shag, from the old Saxon *sceacga*, hair, undoubtedly refers to the crests, which are so characteristic a feature of many species of cormorants. It is difficult to believe, however, that the name would have become imbedded in the popular imagination if it had not had the support of the cormorant-crowned rocks and harbor buoys. The serrated appearance often presented by these familiar objects certainly reminds one of a woolly dog's coat, or the towsled head of a warrior, and is, therefore, for all time, shaggy.



Taken on the Farallons *Photo by the Author*

THE BRIDE

THE MOST HANDSOMELY CRESTED SPECIMEN IN THE ENTIRE COLONY

Speaking of crests, fashions are various; and in the case of the Farallon Cormorant, at least, very variable. Note the specifications above: "a tuft of narrow, filamentous feathers on each side of crown over and behind eye, all black, or all white, or mixed black-and-white, or wanting" —all the necessary latitude between hobble skirts (from which the good Lord deliver us) and hoop skirts (from which the good Lord has delivered us). It is no discredit, therefore, to the brooding mother (shown on page 1939) that she has discarded plumes; nor need we, on the other hand, begrudge to "the bride," shown on this page, the beautiful, and rare, adornment of pure white "aigrettes." It was surely some such rare example as this which led Newton, in speaking of *P. graculus*, to declare her "one of the most beautiful of sea birds."

Beauty, of a sort, this cormorant undoubtedly possesses. The bird's eye is of a handsome blue-green (rather an unusual color among birds); and its hue both matches the "pipings" which border the loral areas and complements the rich orange of lores and gular spaces. When milady yawns one glimpses "linings" of livid blue. Moreover, in spite of the filthy surroundings of her nest, the shag is not uncleanly in personal

Taken on the Coast of Washington *Photo by the Author*

YOUNG CORMORANTS

THE BIRDS ARE WHITE-CRESTS (*P. a. cincinnatus*), NOT APPRECIABLY DIFFERENT FROM THE FARALLONS (*P. a. albociliatus*)

appearance, her sleek shininess being due in large measure, no doubt, to her frequent ablutions.

Unlike the Baird Cormorant, which is nervous and flighty to a fault, the Farallon is a plain, home-loving body, very amiable if treated with reasonable consideration. Partly because of her more phlegmatic disposition, and partly, no doubt, because most of her eggs have hatched by vacation time (which is as early as most of us get around to pay a visit to the sea-bird isles), it is often possible to get very close to brooding birds of this species. I have sat down on the very door-step (marble or merely whitewashed mattered not) of a shagine home and visited with the occupant to heart's content.

Farallon cormorants usually deposit their complement of eggs during the first week of May, and are, therefore, the earliest nesters of the three local species. The nests are usually built of sticks if these are available. In default of these, as on the Farallon Islands themselves, the birds pluck coarse weeds instead. There is no proper lining, but various soft substances, such as bark, moss, sea-weed, rags and feathers, are incorporated in the structure, which is usually placed in an exposed situation,—the crest of a ridge or the summit of a rock.

A typical cormorant rookery is, of course, foul from every conceivable source. The nests and rocks are white with excrement, and with this the callow young are more or less besmeared. Then about the nests lie fragments of uneaten fish, and to these flies swarm in myriads. Add to the general raciness of odor an occasional overdone egg, and you have a fine unsavory mess of it.

Young cormorants are perfectly helpless when hatched, and are, if possible, uglier than young magpies. Not only are they coal black and as naked as sin, but their heads are scarcely larger around than their long necks, and a nestful of them looks more like a bundle of young blacksnakes than anything avian. The characteristic orange upon the gular area of the adult is reflected by a pale yellow, sharply contrasting with the posterior black, even in the very youngest specimens; while youngsters half or two-thirds grown are covered with a coarse black down. When

Taken near Mecca *Photo by the Author*

A POPULOUS COLONY

THE HOST TREE IS A WATER-WORN MESQUITE NOW EMERGING AFTER THE GREAT FLOOD WHICH FILLED THE SALTON SINK

disturbed at the nest the younglings quit their quarters and waddle off clumsily to the farthest nest of the immediate group, where they stand on the defensive a dozen or twenty strong. When brought to bay, and, of course, after they have disposed of the contents of their crops, no matter where, they thrust out the neck at the intruder and open the gullet, until it almost makes one dizzy to look down it, emitting the while a sound between a hiss and a bark, intended no doubt to be frightful, but really only dismal or ridiculous. Most interesting, also, is the curious pulsating of the loose membranes of the throat during excitement or anger, or perhaps

during activity of any kind. The pulsating movement is rapid and to appearance violent, and it is characteristic not only of this species but of the next as well.

If the shags take heavy toll of the finny tribes, they pay fearful tribute, in turn, to their ruthless overlord, the Western Gull. From the time the first egg is laid, one or the other of the parents must mount guard incessantly to keep the marauder at bay. The gull is a coward and cannot stand up under well directed blows of the shag's beak; but once let the owner's attention be diverted, and the gull slips in to snatch an egg or a stripling youngster. Human intrusion is welcomed by the gull with loud acclaim, for in the great colony of shags many will flee in fear before the man. This is the gull's opportunity, and he will gobble

Taken on the Salton Sea *Photo by the Author*

A GROUP OF NESTS

the uncovered eggs in a trice, or return again and again till all the bantlings are appropriated. It may be the law of nature, but it always arouses in the beholder feelings of indignation to see a gull seize a helpless black baby by the neck and bolt it in midair, in spite of frantic kicking and

Taken on the Salton Sea *Photo by the Author*

AN AWKWARD LANDING

THE NEIGHBOR OF THE UNFORTUNATE BIRD IS USING VERY UNLADYLIKE LANGUAGE

squirming. Perhaps we are over-fastidious. The squab has no feathers which need plucking or singeing, and as for removing the chicken's head before swallowing, it is a mere human custom, like washing the hands, or saying grace before meat. Ah, that is it! It is the gracelessness of the performance which gets on our nerves. If the gull would only say, "By your leave, gentle cousin," and observe a decent ceremony in leading this lamb to the slaughter, we should quite approve of his action, should we not?

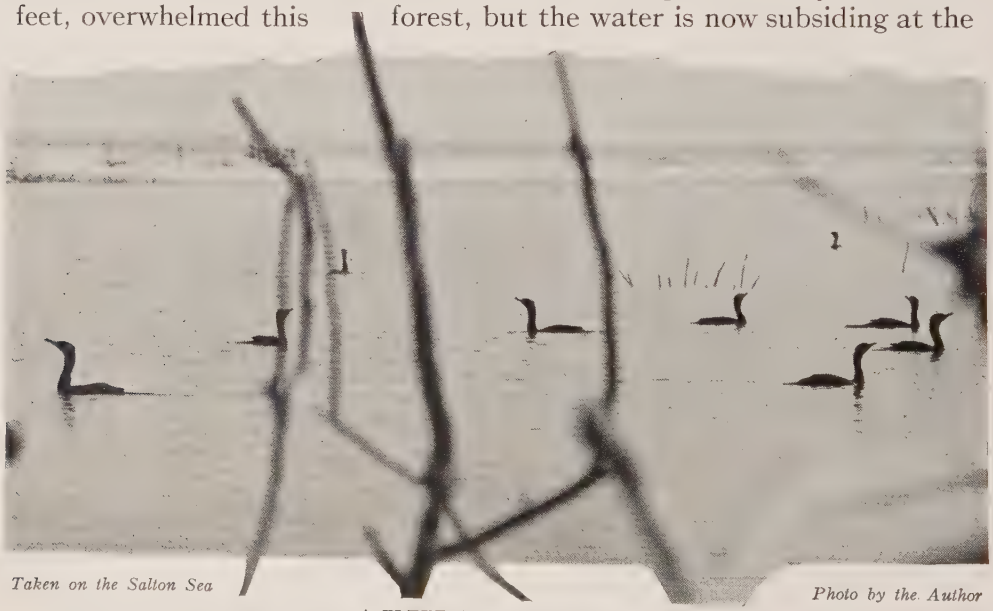
It will be impossible in our limited space to record all the joys and the sorrows of shagdom; but a brief notice of some of the more prominent nesting colonies may not be amiss.

The type locality for this subspecies, the Southeast Farallon, while situated about midway of its range, and typical enough as to situation,

is really not a conspicuous nesting site. The colony which occupies the south exposure of the summit of Roundtop fluctuates in size from year to year, having suffered severely of late from the depredations of the Western Gulls. When I visited the place in May, 1911, it had dwindled to about forty pairs.

Since the desertion of the famous Seal Rocks, off Golden Gate Park, by the Steller sea-lion, they have been occupied by a populous colony of "Farallons." Scarcely a more conspicuous or instructive example of the home life of sea-birds could be presented than is there afforded to the countless throngs who visit the Cliff House every summer. In particular, the nesting of 1915 was spectacular, and those tourists who came provided with good binoculars needed no after sight of the excellent habitat group prepared by Messrs. Rowley and Fair for the Museum of the California Academy of Science.

The Farallon Cormorant is even better known as a habitant and visitant of interior waters than as a sea-bird. It occupies rookeries in Tule Lake, Eagle Lake, Clear Lake (in Lake County), and along the flooded banks of both the San Joaquin and Sacramento rivers. Most notable, perhaps, is its occurrence on Salton Sea. The trough of the depression formerly known as Salton Sink was occupied by a heavy growth of mesquite. The great body of water formed by the overflow of the Colorado River in 1905-1907, which attained a maximum depth of nearly a hundred feet, overwhelmed this forest, but the water is now subsiding at the



Taken on the Salton Sea *Photo by the Author*

A FLEET OF SUBMARINES

A CORMORANT RIDES VERY LOW ON THE WATER

rate of four or five feet per annum, and the mesquites, now denuded of leaves and minor twigs, are reappearing in successive ranks, below Mecca. The Cormorants are thus assured fresh and not easily accessible nesting sites every year.

Taken on the Salton Sea *Photo by the Author*

PUTTING ON THE BRAKES

We found a thrifty colony of some four hundred pairs here in 1913. Nest building had evidently been begun not later than the 10th of *January*, while on the 31st of that month, amidst much stir of traffic, croakings, bellowings, flappings, and lugging of sticks, we found about one-third of the nests already occupied by sitting birds. The birds fled in a body upon our approach (in a leaky boat rescued from last year's beach-line, a half-mile inland, and duly calked with collectors' cotton); but upon our promise of good behavior, backed by consistent quietness, they ventured back by twos and threes and small platoons.

Your Shag is no ballet dancer. Water is her native element, and she is not ungraceful in the air, but lighting on a sprangly mesquite bough is a more difficult matter. As the contact is about to be made, the performer is convulsed with an agony of apprehension. The tail-brake is set hard, the wings are back-firing, the splay feet are held tense, while the acuteness of anxiety is most convincingly shown by the rigidity of the hyoid apparatus which makes an acute angle in the throat. As often as not, the bird misses her footing and scrambles madly, while her disconcerted neighbors roar protest.

The prosperity of this colony was evidenced both by the unusually large average number of eggs per nest—fours and fives being the rule, and sixes not rare—and by the uniformly large size of the eggs. The controlling factor of this prosperity was undoubtedly the abundant food supply. Fish of four or five kinds struggled feebly in the shallow waters or else lined the shore in windrows. Chief among them was a large sucker (probably *Catostomus latipinnis* of the Colorado River), which would weigh from five to fifteen pounds, and a smaller hump-backed fish (a degenerate form of *Xyrauchen cypho?*), some six inches long. It was impossible to determine what was causing the demise of these fish, whether the increasing saltiness of the water, or the exertions of the spawning season. Certainly it was not due to any failure in food supply, for the fish were rolling fat.

The remarkably early nesting may have been induced not only by the movements of the fish, but by the disciplinary experience of the effect upon young squabs of the Colorado Desert sun in, say, April, (equivalent to July anywhere else). The Farallon Cormorant is a prudent bird and very adaptive, and given his quintal of fish is likely to survive to gladden our children's children to the *n*th generation.

No. 396

Brandt's Cormorant

A. O. U. No. 122. **Phalacrocorax penicillatus** (Brandt).

Synonyms.—Brown Cormorant. Shag.

Description.—*Adults in early nuptial plumage:* In general deep lustrous greenish black, changing to lustrous purplish black on head and neck; lighter on scapulars and wing-coverts, where feathers exhibit violet-green iridescence and have narrow edgings of the darker green; gular sac dull blue, bordered basally with pale brown (tawny olive) feathers. From each side of the neck springs a loose irregular tuft of stiffish linear white feathers, declined backward and downward two or three inches; similar feathers of twice the width and half the abundance start from the scapulars, and a few others, mere stiffened hairs, are scattered over the lower occipital region. These white adornments disappear with the advance of the nesting season, and the plumage loses much of its luster, especially forward, while the brown feathers bordering the gular area fade to pale buffy (cartridge-buff). *Immature:* General color dark brown, darkest and greenish lustrous on head and neck and posteriorly all around, lightening to pale fawn or buffy brown on breast and border of gular area; feathers of back, scapulars, and wing-coverts glossy greenish dusky with darker borders and pale brown edgings. *Young* (1st juvenal): Like immature, but much darker; color of upperparts more definitely greenish lustrous; rump and sides dark-bottle green. *Downy young:* Sooty brown, sprinkled on belly and wings with white. Size variable—length varies by six inches; length (av. of 10 Monterey specimens): 749 (29.49); wing 293 (11.54); bill 70.4 (2.77); tarsus 65 (2.56).

Recognition Marks.—Eagle size; bluish and fawn-colored gorget most distinctive at close quarters; general absence of positive characteristics itself distinctive at greater range.

Nesting.—*Nest:* A substantial crater of moss, sea-weed, and compacted grasses, deeply cupped, placed on level surface of rock, usually crest of islet. *Eggs:* 4; pale bluish green overlaid with white calcareous deposit; elliptical ovate or elongate ovate. Av. size 62.5 x 38.6 (2.46 x 1.48); index 61.7; av. of a set of 3 selected for low index: 67.8 x 37.6 (2.67 x 1.48); index 55.4; index of narrowest egg 53.6. *Season:* May 20–June 20; one brood.

General Range.—Pacific Coast of North America from Vancouver Island to Cape San Lucas.

Distribution in California.—Abundant resident along the entire seacoast and about the Santa Barbara Islands. Not found away from salt water. Numbers south of Point Conception augmented in winter.

Authorities.—**Gambel** (*Carbo penicillatus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 227 (Monterey); *Loomis*, Proc. Calif. Acad. Sci., ser. 2, vol. v., 1895, p. 177 (desc. of breeding colony at Monterey); *Ray*, Auk, vol. xxi., 1904, p. 437, pl. (desc. of breeding colony on Farallon Ids.); *Howell*, Pac. Coast Avifauna, no. 12, 1917.

Taken on the Southeast Farallon *Photo by the Author*

AN OLD NESTING GROUND

BRANDT CORMORANTS MAY BE SEEN STANDING GUARD UPON THEIR NESTS, BUT CALIFORNIA MURRES ARE MORE IN EVIDENCE

Taken in Washington *Photo by the Author*

NEST AND EGGS OF BRANDT CORMORANT

BRANDT'S Cormorant is both more sociable—or, strictly speaking, gregarious—and more wary than its milder-mannered cousins, the Farallon and the White-crest (*P. a. cincinatus*). Such wariness is a little hard to account for, because the Indians of our southern coasts, where the bird enjoys its widest distribution, were never such bold navigators as those of the Northland, who have for generations robbed the rookeries of the White-crested, Pelagic, and Red-faced Cormorants. Nevertheless, Brandt's is a familiar figure on the piles of the unfrequented piers, as well as on the rocky headlands of our entire coastline. If the bird is not exactly of a mind to fly at the first alarm from a passing steamer, it stands with wings half open, that, should necessity arise, no time may be lost in making good its escape. Again, a group of them will sit on a low-lying reef, or even on a floating log, with wings half extended, "drying their clothes" in the sunshine. The wings as well as the feet are used under water, but we cannot guess why the Cormorants more than other aquatic species should be averse to wet plumage.

These birds nest in large, close-set colonies, which, partly no doubt for sanitary reasons, they relocate from year to year. At least a last

year's nesting site visited on the Farallons was not only buried in whitewash, but contained an appalling number of sodden squab skeletons. The new site chosen for the season of 1911 was on the north slope of Maintop, and by the last week in May was in a furor of nest-building activity. The interested actions of hovering gulls suggested that community tactics had been engendered as much by fear of the gull as anything else. An isolated nest might easily be surrounded by a mob of these pious marauders, and its occupants crowded or lured away; but in a closely occupied colony it is the invader who is surrounded, and a half dozen writhing necks surmounted by beaks of no mean power are too much for the Larine nerve. But it is also amusing to see how the Brandt Cormorants prey upon each other in the matter of building material. They are always grabbing at each other's haypile in passing, and once an absence is noted or an easy mark discovered, the ungenerous neighbors fall upon the nest and lug it off piecemeal. One bird I saw who seized a beakful which for bulk was half as large as himself—a magnificent haul.

Characteristically, the nest is a huge bowl or crater of weeds and grasses, freshly plucked. Of nest-building near Point Lobos, Chapman

Taken on the Southeast Farallon *Photo by the Author*

THE GULLS IN POSSESSION

OUR NECESSARY PRESENCE FRIGHTENED THE CORMORANTS AND THE WESTERN GULLS HAVE CLEANED UP EVERY EGG IN SIGHT

says:[1] "The Cormorants were now gathering grass for their nests, from an island almost within a stone's throw of the mainland. They appeared as a rule from the south, alighted at the edge of the island, a cliff some thirty feet in height, waddled awkwardly to the unclipped grass, pulled a bill-full, waddled back to the cliff border, threw themselves into the air on outstretched wings, and flying toward the north, returned to their nesting rock, which was immediately back of the one on which they were haying. Throughout the day feathered mowers were rarely absent from the field, sometimes as many as nine birds being present. The denuded area from which the grass had been removed was as bare and as sharply defined from that portion of the crop which the Cormorants had not yet gathered as though it had been mowed and raked by a human harvester."

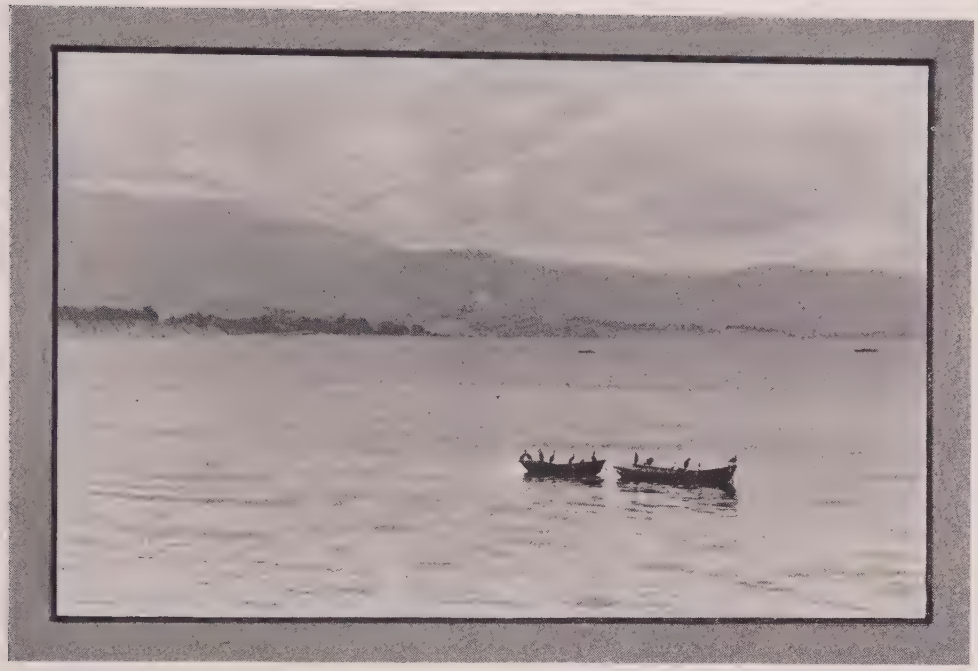
The eggs, normally four in number, are of a delicate "blue"—the color of skim milk, Finley says. This effect is secured by a thin white

[1]Camps and Cruises of an Ornithologist, by Frank M. Chapman; New York, D. Appleton & Co., 1908, p. 272.

Taken near Santa Barbara *Photo by the Author*

THE LEGACY OF GUN-FIRE

ALL WINGED CREATURES FLEE AT THE APPROACH OF CIVILIZED (!) MAN



Taken in Santa Barbara *Photo by the Author*

PEACE

calcareous veil drawn over the whole, a sort of limy crust which now and then breaks away in patches, uncovering areas of purest heron's egg green. This limy incrustation is sometimes so coarse and irregular that the whole egg appears like some quaint arabesque in green and white. The eggs are soon soiled and nest-stained, however, and in many cases they become a dull brownish from the excretions of innumerable shag-flies which haunt the scene.

The newly hatched young are mother naked, and of a repulsive greasy black appearance. At the age of a week or such a matter they are covered with a thick black down, well sprinkled upon the sides with white. The gular area is of a livid blue-black color from the outset, and young Brandts may thus be clearly distinguished from young Farallons, with which they occasionally mingle when frightened. A young cormorant is no mean climber. Armed with sharp claws, and hesitating not a moment to use wings in lieu of hands, an unsettled squab can scramble back up a very steep bit of rock. The social instinct is very strong in times of danger, and a hundred bantlings will huddle together in a single seething mass of apprehension.

The details of infant nursing are fortunately obscured from the eyes

of a reluctant public. The "operation" takes place in the parental throat, down which the youngster thrusts his serpent-like head. Do not, therefore, accuse the gentle shag of cannibalism when you detect it in the act of swallowing the first six or eight inches of its infant's anatomy. Baby has been invited to help himself, and he will presently emerge from those fish-lined depths in radiant if dishevelled triumph.

Dr. Brewer says[1] of an allied species, nowise different in this respect: "The eggs have a very strong and disagreeable flavor, and they cannot be made to coagulate by boiling." As to the latter point I cannot say; I have always taken mine fried, with a bit of bacon, and believe me, they are delicious. Tut, tut! what am I saying? Avaunt, savage seductive memory! we are civilized now, and we must not under any circumstances rob the poor birdies. No one but an Indian should be allowed to eat a Shag's egg, and he should have a warden posted on either hand to see that he does not take two. But it is to laugh—that hoary, pious, fraudulent tradition about the eggs of sea-birds being "fishy," or "musky," or having "strong disagreeable flavors." The Doctor must have got hold of an overripe one.

The winter chronicle of the Steganopodous sea-front has not yet been written. We only know in a vague way that there is a considerable redistribution of shags at that season. Perhaps it is merely because the birds are released from family cares that we see a good deal more of them inshore. A school of herring occasionally seeks refuge in the shallows, and they are as likely to invade the waterfront of some coastal town as remoter spots. Thus, on the 24th of December, 1917, the guests of the Potter Hotel saw a mixed flock of about 2,000 birds, chiefly shags, crowding the nearer reaches of our little bay and bewailing the bashful herring.

Two days later, at a protected spot six miles west of town, a companion and I stumbled upon a scene which seemed like a chapter from the elder world. We had appeared unexpectedly at a very low tide around the foot of the usually impassable cliff at Moore's Point. On the beach of the embayment just east of the black and white cliffs (asphalt and shag-shearn) we discovered an immense company of sea-fowl, chiefly shags, sunning themselves. They took alarm at our distant approach, but were presently reassured when we seated ourselves in the shadow, and proceeded to re-form themselves into a line for landing. This was altogether one of the most interesting operations I have seen among the sea-birds. The landing line, consisting of several birds abreast, extended out from shore nearly half a mile, all of the intending immigrants swimming slowly toward shore. It was interesting to watch the landing itself. The shags allowed the surf, which is very gentle here, to wash them ashore, and then

[1] Baird, Brewer and Ridgway, "The Water Birds of North America," Vol. II., p. 153.

they struggled free of the water, shook themselves, and went waddling up the wet spume as fast as their short legs would carry them. The upper beach had become, therefore, a solid black mass of shags.

Not all the shags required to wade ashore, for there was a constant string of arrivals by the air route. As nearly as I could make out the three species were represented, Baird's, if any, decidedly in the minority, the Farallons outnumbering the Brandt's three to one. Altogether there must have been three thousand ashore, the most I ever saw at one time. Of other birds there were Heermann Gulls, Western Gulls, Royal Terns (a few) and California Pelicans.

As we approached, a second time, the necessity of early action in flight became more apparent to the birds. The great body of birds up-beach was helpless, or nearly so, by reason of juxtaposition, so the exodus began at the water's edge and worked up the beach as fast as possible. As we broke into a run, the pace became feverish, but there was no disorder. The birds knew that they had just one chance, and they took it. In an incredibly short space of time the army melted away, from the front only, and the last bird had cleared with a run and violent flapping when we arrived, laughing and breathless. There was nothing to fear. The birds knew it then, and they blinked at each other sheepishly from behind the line of breakers—blinked or winked, I am not just sure which.

Photo by the Author

THE ETHIOPIAN CLUB

BRANDT CORMORANTS ON ROCK NEAR SANTA CRUZ

No. 397

Baird's Cormorant

A. O. U. No. 123b. **Phalacrocorax pelagicus resplendens** Audubon.

Synonyms.—Resplendent Cormorant. Southern Violet-green Cormorant. Shag.

Description.—*Adults in breeding plumage:* General coloration deep lustrous bottle-green with purplish reflections; head and neck all around shining violet with steel-blue changes, a few lanceolate white feathers projecting at random from sides of head and neck; a prominent flank-patch pure white; frontal and occipital feathers lengthened, producing two crests, of which frontal more prominent; frontal feathering reaching culmen, but eyelids and space below eye bare; gular sac reduced in area, dull coral-red. Bill and feet bluish-black; iris bright red. *Adults after breeding season* are without crests, plumules, or flank-patches. *Young birds* are plain sooty black above, lighter, or whitening centrally, below. *Nestlings* hatched naked, soon acquiring sooty gray down. Length (av. of 10 Monterey Bay specimens): 640.8 (25.51); wing 259 (10.20); bill 46.5 (1.83), depth at narrowest portion 7.57 (.30); tarsus 50.8 (2.00).

Recognition Marks.—Brant size, smallest of local cormorants; white flank-patches in breeding season; lustrous green and violet plumage distinctive.

Nesting.—*Nest:* A low crater or semilune, compacted chiefly of eel-grass, cemented with excrement; placed on narrow ledge or upon rock boss of sea-wall. *Eggs:* 2 to 4, 5 of record; pale bluish green, with irregular calcareous covering; elongate ovate to cylindrical ovate. Av. size 57.3 x 35.6 (2.256 x 1 40); index 60.3. *Season:* June; one brood.

Range of *Phalacrocorax pelagicus.*—The coasts of the North Pacific Ocean, south to China and western Mexico.

Range of *P. p. resplendens.*—Pacific Coast of North America from northern Washington south to Cape San Lucas and Mazatlan, Mexico.

Distribution in California.—Common resident along the entire seacoast, breeding upon exposed portions of rugged rocks and mainland cliffs. Not found away from salt water.

Authorities.—**Heermann** (*Phalacrocorax resplendens*), Rep. Pac. R. R. Surv., vol. x., 1859, p. 72 (Farallon Ids.); *W. E. Bryant*, Proc. Calif. Acad. Sci., ser. 2, i., 1888, p. 25 (desc. breeding colony on Farallon Ids.); *Clay*, Condor, vol. xiii., 1911, p. 138 (depth of diving).

HARD experience, as well as innate suspicion, has led the Baird Cormorant, long since, to forsake the comfortable quarters of her easy-going kinsmen, the Brandt and the Farallon, and to rear her young on the bosses and inaccessible ledges of grim sea-cliffs. The ridges and crests belong to the larger Shags, but the sides are her domain. Her calculations are not always infallible—your Shag is no Plato—but ungetatability has been her life study, and her average attainments in this line are noteworthy. The sculptured pillars and crannied sea-walls of

our smaller coastal islands are an especial delight to her, while some of the sheer walls upon our mainland promontories permit fairly gratifying opportunities for study. Indeed, there is scarcely an islet along our entire Pacific Coast, from the Santa Barbara Islands to Norton Sound, which does not boast from one to thirty pairs of these venturesome birds (or the doubtfully larger form, *P. p. resplendens*); while the larger islands, like the Farallons, and the more inaccessible promontories, harbor hundreds. In an ideal situation, like that furnished by Fuca's Pillar, off Cape Flattery, these shags range themselves in serried ranks along impossible ledges, looking collectively like black bottles on a druggist's shelves, or, more elegantly, and at closer quarters, like ebony statuettes on marble pedestals.

Taken in Washington *Photo by the Author*
BAIRD CORMORANTS AT NEST

Cormorants plunge into the wildest waters as fearlessly as sea-lions, and they carry on their fishing operations about the shoulders of booming reefs which humans dare not approach. Baird's Cormorants appear to be quite the most intrepid of their kind; and if certain accounts of northern fishermen, recorded by Mr. C. I. Clay,[1] of Eureka, are to be believed, they have been taken in eighty fathoms of water. Mr. Clay himself saw Brandt Cormorants enmeshed in nets set at twenty fathoms, and was told that the larger species was never taken below forty. Wings are used for propulsion as well as the powerful full-webbed feet. The nostrils, moreover, of all adult cormorants are permanently closed, so that we have here perhaps, at least among those *who can also fly*, the world's champion diver. After luncheons, which occur quite frequently in the cormorant day, the birds love to gather on some low-lying reef, just above the reach of the waves, and devote the intervening hours to that most solemn function of life, digestion. There is evidence that the birds discuss oceanic politics on these occasions—the benevolent assimilation of a twelve-

[1] Condor, XIII., p. 138.

Taken in Washington *Photo by the Author*

A NESTING WALL OF BAIRD CORMORANTS

CAREFUL INSPECTION WILL MAKE OUT FORTY BIRDS SITTING ON OR NEAR THEIR NESTS

inch buffalo cod is presumed to be sufficient occupation for union hours.

As might be inferred from their choice of nesting sites, Baird Cormorants are more sprightly than the larger species, and also exceedingly shy. An interview at close quarters is impossible, and we must employ stealth to get close enough to one to note the lustrous black plumage with the flashing iridescence of violet and green and purple, the curious feather-tufts like budding horns, and the blood-red eyes, which impart to their owners a fierce, not to say wicked, appearance. Under apprehension of danger, the bird will crane its neck at every conceivable angle, punctuating its moments of anxiety with a flirt of its mobile

tail—that is, if that useful member can be spared from its frequent duty of assisting the bird to maintain a precarious foothold on some slight projection of the cliff side. Now and then also the bird voids vigorously, distributing an impartial whitewash over all surrounding objects.

When the birds of a colony quit their nests, they launch out swiftly, wagging their heads from side to side if the danger is above them. They may join the puffins and gulls for a few rounds of inspection, but oftener they settle in the water at some distance from the shore, a large company of them looking and acting very much like a flock of black geese. It requires quite an effort on the bird's part to rise from the water, but this is done with a single motion of the wings, unassisted by the feet, as would be the case with heavy ducks and loons. If the Shag has been diving, it may burst out of the water with the acquired impetus of the chase; and once under way, its flight is swift and vigorous and not altogether ungraceful.

Baird Cormorants are late nesters. Fresh eggs may be taken by the

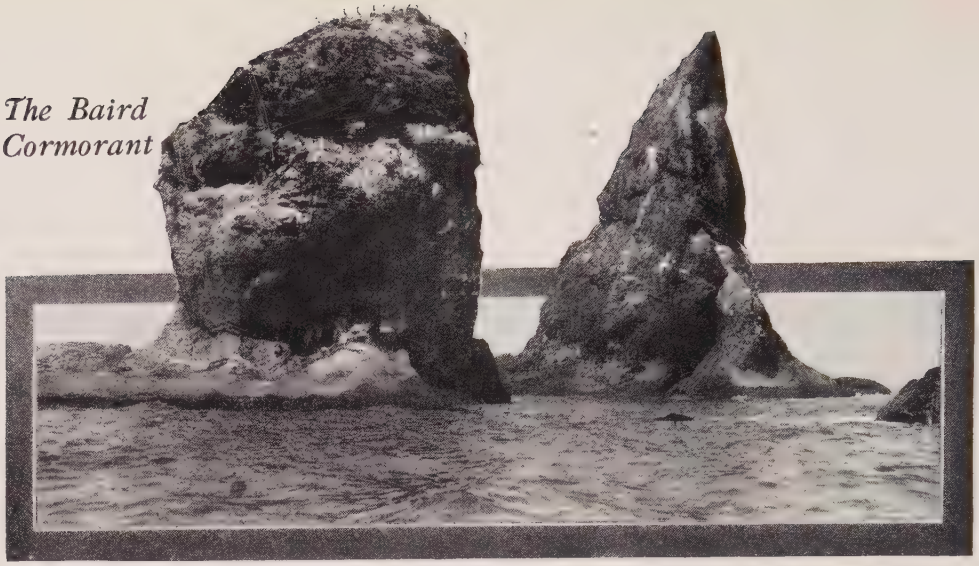
Taken in Washington
Photo by the Author

A POPULAR NESTING SITE

NESTS OF THREE SPECIES OF SHAGS
OCCUPY THIS POINT

1959

The Baird Cormorant



Taken in Washington *Photo by the Author*

KNOB AND SPIKE

middle of June, or even the middle of May in extreme southern localities, but the first of July is nearer the height of the season. Nests are bracket-shaped, or quadrispherical, oftener than complete crater-shaped; for allowance must be made for the crowding of the wall, against which this cormorant always builds. The structure is the work of successive seasons, and the limy excrement, which invarably cements the grasses of which it is composed, appears rather to favor its preservation than to hasten its decay. An extreme instance of this seasonal increment may be seen at the mouth of the Painted Cave on Santa Cruz Island. Nesting *towers*, five or six feet in height, appear in certain favored situations, under the protecting vault of the giant archway. Certain of these alabaster monuments, indeed, are feeling the crowding effect of the arching walls, and the time is not far distant when these leaning towers of Pisa must be overbalanced.

The eggs are of a delicate bluish green when first laid, half or two-thirds overspread with a thick chalky deposit. They are of an elongated elliptical shape, varying greatly in size, but averaging smaller than either of the other local species; while runts, or undersized eggs, are not infrequent.

As in the case of all cormorants, nesting is liable to be broken up by the depredations of gulls or ravens, so that if a second attempt is made, the rearing of chicks is thrown very late in the season. At Grenville Point, on the Washington coast, I found nests with incomplete sets, as well as young just hatched, on the 27th of August, 1910. On the 17th of the month following I revisited the scene, and concluded that some, at least, of the youngsters under review would not be able to quit the nest before November.

1960

No. 398

White Pelican

A. O. U. No. 125. **Pelecanus erythrorhynchos** Gmelin.

Synonym.—Rough-billed Pelican.

Description.—*Adult in breeding plumage:* General plumage white; the primaries black on exposed portions; secondaries black, touched with hoary gray near tips; a pendent occipital crest of white or pale yellow; lanceolate feathers of lesser wing-coverts and chest pale straw-yellow or buff; a thin, elevated, horny protuberance on ridge of culmen a little forward of the middle; bill and pouch reddish; legs and feet bright orange-red. *Adult in winter:* Similar but without horny protuberance on bill; the occipital crest wanting; yellow coloring of chest and wing-coverts pale. Bill and feet not so bright. *Immature:* Like adult in winter, but feathers of crown and lesser wing-coverts mixed with brownish gray; chest feathers not modified; a fluffy, short, occipital crest; the bill, pouch, legs, and feet pale yellowish. "Length 4½ to nearly 6 feet; extent 8½ to nearly 10 feet; weight about 17 pounds" (Ridgway); wing 610 (24.40); tail 152.4 (6.00); bill 266.7-381 (10.50-15.00); tarsus 123 (4.85).

Recognition Marks.—Giant size, with large bill and gular pouch; white plumage.

Nesting.—*Nest:* A crater of earth 4 or 5 inches high and surmounted by a few twigs or weed-stems; nests in colonies on islands of large lakes. *Eggs:* 2 or 3, rarely 4, 5 of record; elongate ovate, or elliptical ovate, roughly chalky as to surface; white, but often smeared longitudinally with bright olive (olive lake). Size variable; average perhaps 87.6 x 58.4 (3.45 x 2.30). *Season:* April 15–May.

General Range.—Interior and western North America; breeding from British Columbia, Great Slave Lake, and southwestern Keewatin, south to Manitoba, Utah, and southern Californa; wintering from Florida, the Gulf States, and southern California south to Costa Rica; also occurring on the Atlantic Coast during migrations, north to New Brunswick.

Distribution in California.—Common resident both east and west of the Sierras, or possibly retiring in winter from the northeastern plateau region. Appears on lesser lakes and reservoirs and rarely coastwise during migrations or in seasonal wanderings; breeds on islands in Tule Lake, Eagle Lake (at least formerly), Sacramento River (formerly), Tulare Lake, Buena Vista Lake, and Salton Sea.

Authorities.—**Gambel** (*Pelecanus trachyrhynchus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, p. 227 (Calif.); *Finley*, Condor, vol. ix., 1907, p. 35, figs. (desc. and photos of breeding colony at Tule Lake, n. Calif.); *Grinnell*, Condor, vol. x., 1908, p. 187 (breeding colony on Salton Sea).

WELL did the Psalmist of old choose the Pelican as the symbol of the wilderness. "Dead" seas and salty, the mighty evaporating pans of the desert, have here given rise to a race as weird, as majestic, as gracefully uncouth, as any that have ever adorned the pages of time. The White Pelican is an embodiment of an elder age, a legacy of the opulent days when Nature took thought of her winged children, and recked not of the reign of man, man the ruthless, man the envious, man the destroyer.

Taken on Salton Sea *Photo by the Author*
A PASSING PLANE

For eons the great white birds have circled and soared over the desert wastes of interior western America. For generations uncounted they have fished in the salty waters of Lake Lahontan, of Lake Bonneville, and their successors; or they have foregathered ashore in snowy windrows to meditate, to digest, and to gladden withal the retrospective eye of the rare man who, like his Creator, enjoys the simple bliss of the undisturbed wild. The Pelican and the wilderness stand together in their mute appeal. When the one is fully "reclaimed," the other must perish.

It need not be supposed that these ponderous fowls, the largest of water-birds by avoirdupois, are to be set down as awkward simply because they have big bills. Viewed at a distance, as they rest on shore or near some low mud island, their stately ranks present a most impressive spectacle. In flight they are calm, almost majestic; and their white plumage, set off by black wing-tips, makes a fine showing in the morning sun. They sit the water almost as gracefully as swans, and "tip" in a dignified way, immersing the entire head and neck—again much after the fashion of swans. Being provided, also, with an extensive system of air-sacs, they ride high and get credit for all their inches.

Two pictures come most vividly before the mind's eye of the author. One is of a company of about 300 pelicans who daily resorted to the western end of the Salton Sea, *then*, in 1913, near Mecca. Although the Farallon Cormorants were nesting feverishly, February 1st, the Pelicanos

alternately loafed and fished in idyllic indolence and in utter disregard of the claims of posterity. It was like a yacht-meet; and although there was no racing, a landsman got the same impression of being surrounded by the masters of a strange medium, sea-creatures, shamelessly and gloriously white. If we paddled toward the birds in a leaky skiff which served our photographic needs, the nearest members of the company took slow alarm,

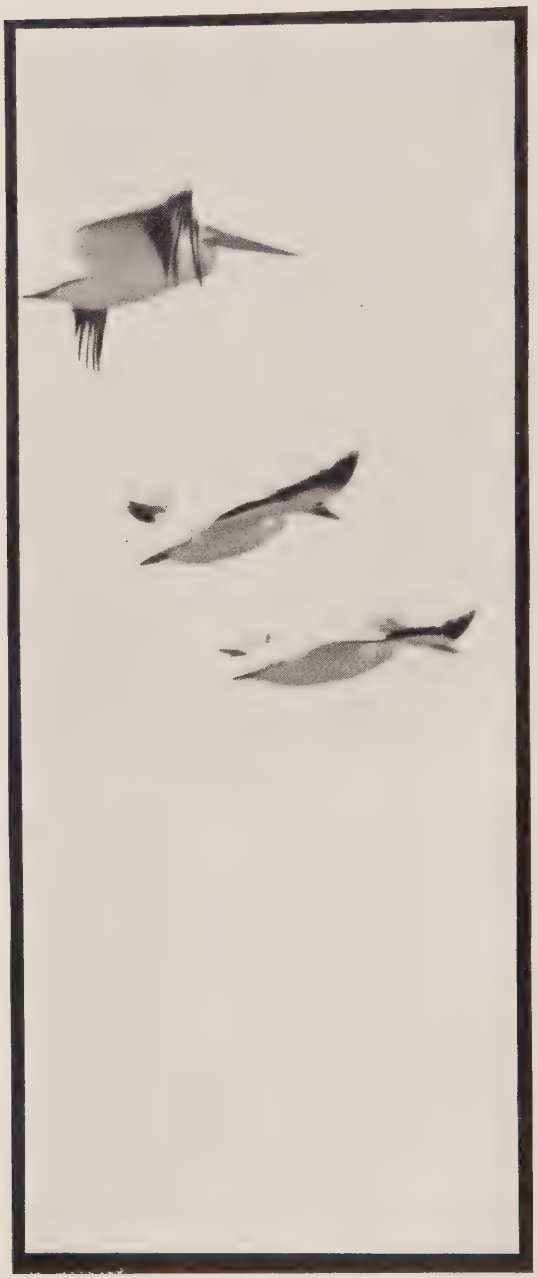
Taken in Merced County *Photo by the Author*

A LODGE IN THE WILDERNESS

rose, and settled with their fellows farther up the bay. Just before sunset, without further provocation, the entire regiment would take wing with a muffled roar very inspiriting to the ornithological ear.

A second picture is of a company of birds which gathered daily in midwinter at Potholes below the big Laguna Dam, in the Colorado River. There were shoals here, midstream, where the birds could rest—great, comfortable-looking creatures that they were; and as for fish, the neighboring pools were evidently swarming with fish whose upward course had been arrested by the dam. The waters from the spillway roared, the dam itself proclaimed the arrogance of man, the arbiter of destinies, but the gleaming birds spoke only of elemental peace.

The third picture is of a company of birds, a hundred or so, who, having come west, perhaps through the San Gorgonio Pass, were daunted by the splendor of Pasadena and the distant immanence of still more dreadful Los Angeles, and who sought escape to the upper deserts. From a back porch in Altadena I saw the birds rise in majestic circles until

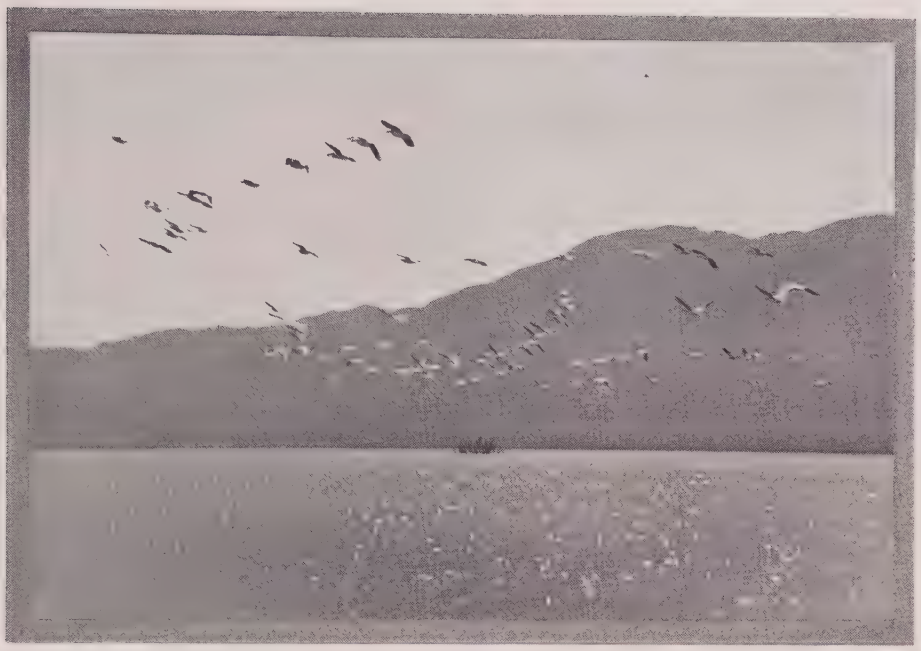


Taken on the Salton Sea *Photo by the Author*

THREE GRACES

they had topped Mt. Lowe, whose observatory they examined curiously; and then I watched them, sharply pointed dots of white against the chaparral green of the mountains, until they had cleared Mt. Wilson and disappeared toward Mohave. It was a "flying circus," in the days before human imitations had made their appearance, at least in squadron formation, and at that I think the birds had the advantage.

Speaking of aviators, I recall a fourth picture in which these master craftsmen of the air posed as inspectors of the new aspirants. It was at a famous meet of the early day, April 19th, 1913, at Sacramento, when Christofferson, Blakely, Francis, and others were entertaining the crowd at the State Fair grounds. There were two machines in the air doing a sky-climb, which was to conclude the program, when a close-ranked platoon of some thirty-odd White Pelicans swept over the exhibition grounds in silent majesty. But in passing, their attention was attracted by the strange invaders of their ethereal medium, and they broke file, wavered, circled and towered in curious confusion and apprehension, for the space of ten minutes. Alas! not even the sky is safe for these children of the older day.



Taken in Riverside County *Photo by the Author*

WHITE PELICANS OVER SALTON SEA

The Pelican lives upon an exclusive diet of fish, and he uses his great gular pouch as a dip-net, or scoop, rather than as a creel for transportation, as was formerly supposed. He prefers little fish to big ones; and, indeed, the big fish rarely come his way, for he does not plunge from midair, after the fashion of his brown cousin, *P. o. californicus*. After a successful haul, the fisher bird raises his head, contracts the bellying net, or pouch, ejects the water, and swallows the catch. It sometimes happens that the bird makes a greater catch than he can handle, or, at least, greater than he has time to swallow during the rush of a successful drive. In this case he retires to shore with a full basket to effect a readjustment or to discard a clearly proven surplus.

The fish are carried in the crop, and the young are fed during infancy by regurgitation. As they advance in age, however, they are allowed to thrust their greedy beaks down the parental gullet and help themselves to findings—a most shocking procedure.

At nesting time the Pelicans resort in large numbers to islands, whether low-lying or more rugged, in the larger lakes; less frequently to shoals or tule barrens in overflowed areas. Not alone because of persecution, but because of fluctuation in the water supply, these nestings are subject to greater or less vicissitudes, and in some dry seasons are

abandoned outright. The appearance, then, of scattered companies in spring or summer is no sign that the birds are nesting in the immediate neighborhood, or indeed anywhere.

Pelicans have bred at many scattered stations in California, and they still nest at a few of them. The history of these nestings, within

Taken on Lower Klamath Lake *Photo by Finley and Bohlman*

PARENTAL PRIDE

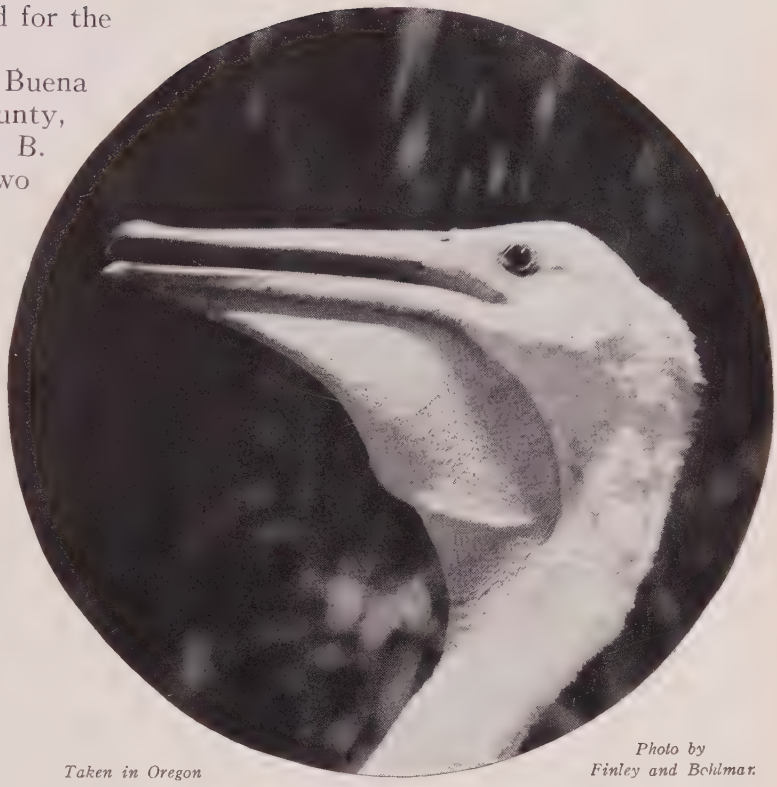
recent decades even, would make a pretty volume. Not having had the privilege of making a close personal study of a breeding colony of White Pelicans, the author must content himself with a brief citation of recent nesting records, and a paragraph or so descriptive of conditions found by others.

In 1906 and 1907, with the outbreak of "New" River and the reformation of Salton Sea, the White Pelicans took up residence on Echo Island and Pelican Island. Here they were visited by Joseph Grinnell[1] in 1908, April 19th and 20th, and he found 980 occupied nests on Echo Island, besides many others in process of construction. This colony, long since scattered by reason of the restoration of Echo "Island" to the mainland, was especially interesting as having been at the southernmost

[1] Condor, Vol. X., Sept., 1908, pp. 187-189.

breeding station of record for the species.

A colony nesting on Buena Vista Lake, in Kern County, was first reported by C. B. Linton, who says:[1] "Two large colonies were visited; one of about 250 nests, on a small sandy island in the river mouth; the other of perhaps 500 nests, on the lake shore. The nests of the latter colony were mostly well constructed of tules and marsh grass covering about two acres. The nests on the island were merely holes scooped in the sand." This island colony was visited again on June 8th, 1912, by Messrs. A. Brazier Howell and Chester Lamb, and they reported[2] six hundred occupied nests, about equally divided between the Pelicans and Cormorants (*P. a. albociliatus*). "As everyone knows who has skinned a pelican, there



Taken in Oregon *Photo by Finley and Beldman*

WHITE PELICAN, IMMATURE

[1] Condor, Vol. X., Sept., 1908, p. 196.
[2] Condor, Vol. XV., May, 1913, pp. 116-117.

Taken in Merced County *Photo by the Author*

AN ELEPHANTINE FLEET

is a mass of air cells between the surface skin and the body nearly three-quarters of an inch thick, which can be inflated at will, and which no doubt accounts for the easy flight and wonderful soaring of this ungainly bird. Their method of securing fish is interesting, and almost shows brain work. Just after dark and frequently during the night, loud splashings could be heard. This we found to be caused by the

Taken in Siskiyou County *Photo by Wm. L. Finley and H. T. Bohlman*

HELPING HIMSELF

pelicans forming in line out in the shallows and then starting shorewards with much flapping of wings on the water in order to drive the fish where the water was shoal enough for them to be easily caught by the birds. In fact this is the only method of fishing that they could employ, for the water is neither clear nor deep enough for them to follow such diving tactics as are adopted by *P. californicus* on our coasts."

According to local rumor, a shifting colony of Pelicans has maintained itself on Tulare Lake for a great many years. As we were skirting the western shore of the lake on May 14th, 1912, we saw many birds, and a young man who herded cattle hard by told us minutely of the location of a colony of White Pelicans breeding on a tiny island some

18 miles away. He claimed to have visited the place on the 1st day of May, at which time most of the nests to the number of "thousands" were occupied. Goldman had heard similar rumors in 1907.[1]

Heermann stated, in 1859, that "a few pairs" were breeding in the Sacramento Valley. Probably the descendants of the colony referred to were among the ones photographed by Mr. George Neale on Lone Tree Island, about three miles northwest of the City of Sacramento, on June 28th, 1910.[2] Very possibly there are several scattered colonies in the great central valley of which we have no record at this time.

The next "registered" breeding station appears to be Eagle Lake, where, in 1884, Charles H. Townsend found the birds in great numbers.[3] "There are two islands lying in this beautiful sheet of water, and I observed that the pelicans had taken almost exclusive possession of one of them, the other being similarly occupied by equally large numbers of shags."

Lastly, Finley and Bohlman, visiting Tule (or Rhett) Lake in the summer of 1905, found a small colony breeding in association with Farallon Cormorants. Lower Klamath Lake, on the Oregon-California boundary, was visited the same season, and of the eight or ten big rookeries there discovered, it is fair to presume that a large proportion were California feeders, if not breeders.

According to this authority,[4] "The pelican season begins in April after the snow and ice have melted, and lasts till August and September when the young are able to care for themselves. In June and July, when we visited the colonies, the young were able to walk and swim about, but the wing feathers had not yet developed flying strength, for the birds were still in the downy stage.

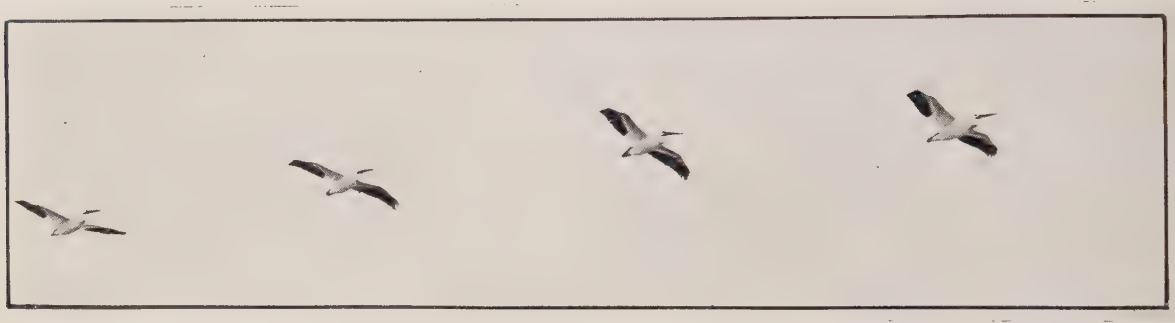
"It takes about a month for the pelican to hatch its eggs, and the baby pelican is naked, helpless and ugly, and has to be shielded from the sun by its mother. Its ugliness increases with age till the youngster is covered with white down. The young birds stick close to the nesting site where they are fed by the parents, until, when about six weeks old, they begin to run about and mingle with the other young birds.

"It would be difficult to tell how an old pelican can recognize her own, but she seems to do it, for nesting is not a communal matter. As soon as an old bird alighted in the rookery, she was besieged by half a dozen young ones, but I never saw one of the parents feed till she had apparently made some selection as to the young.

"The half grown pelicans stand around with their mouths open, pant-

[1] Condor, Vol. X., Sept., 1908, p. 201.
[2] Calif. Fish and Game, Vol. 2, No. 3, July, 1916, p. 161.
[3] Proc. U. S. Nat. Mus., Vol. X., 1887 p. 192.
[4] "Among the Pelicans," by William L. Finley, Condor Vol. IX. March ,1907 ,pp. 35-41.

ing like a lot of dogs after the chase on a hot day, their pouches shaken at every breath. When we went near one of the colonies, the youngsters went tottering off on their big webbed feet with wings dragging on this side and that as if they were poorly handled crutches. The first thing they did when we approached was to vomit up fish and then stagger on with the crowd. Following along after a band of young pelicans was as bad as crossing a battlefield where the victims were fish, for the carcasses were strewn all along in the wake of the procession. Those on the outside pushed and climbed to get nearer the center, till it looked worse than any football scrimmage I ever saw. I watched one large bird rush for the center, bucking over three or four others and finally landing astraddle the neck of another. When we went nearer, those on the outside began to circle the ends, and around and around the whole mass revolved as it moved off. Soon after, the little gluttons retraced their steps to pick up the fish dinners that had been left behind."



Taken in Merced County FOUR PATRIARCHS *Photo by the Author*

No. 399

California Brown Pelican

A. O. U. No. 127. **Pelecanus occidentalis californicus** Ridgway.

Description.—*Adult in breeding plumage:* Bill mottled light and dark with various tinting of carmine; bare space about eye brownish; eyelids red; irides white; pouch red; a short narrow occipital crest of loose feathers; feathers of head and borders of pouch white; the rest of neck dark chestnut to blackish; upperparts silvery gray, the feathers of back, rump, lesser wing-coverts, etc., edged with dusky; underparts dusky, the shafts of feathers white, striped with silvery white on sides, etc.; feet black. *Adult in winter:* Similar but without chestnut on neck, white instead; top and sides of head and the lower jugulum tinged with straw-yellow. *Immature:* Head and neck all around, chest, and upperparts brownish gray, varied somewhat by paler edgings of feathers, especially on lesser wing-coverts, and by dull silvery plating of major feathers of

wings and tail; underparts white, washed with brownish gray on sides; an occipital crest as in adult, but brownish. Length of adult 1371.6 (4½ feet) or more; average of 7 Monterey specimens: wing 565 (22.25); bill 346 (13.60); tarsus 83.4 (3.28).

Recognition Marks.—Giant size; silvery gray and brown coloration, with immense bill, distinctive.

Nesting.—In colonies. *Nest:* A shallow platform of sticks and trash on the ground, usually a sea-girt islet. *Eggs:* 3 or 4; elliptical ovate; white with roughened chalky surface due to irregular overlays of calcareous material, often smeared with bright olive (olive lake) and early nest-stained. Av. size 76.2 x 48.3 (3.00 x 1.90). *Season:* Feb. 15–May.

Range of *Pelecanus occidentalis.*—Coasts of temperate and tropical America from the Gulf States and California south to Brazil and Ecuador.

Range of *P. o. californicus.*—Pacific Coast of America from California to the Galapagos and Ecuador; breeds north to about Latitude 34°, and wanders up the Pacific Coast, chiefly at the close of the breeding season, to Oregon or Washington, and rarely to the mouth of the Fraser River and Alert Bay, Vancouver Island (Mrs. Bicknell). Also casual in the interior east to Nevada (A. O. U.).

Distribution in California.—Breeds north on the Santa Barbara Islands to Anacapa Island and Prince Islet (off San Miguel). Found at all seasons irregularly and in varying numbers along the entire coast line and in bays and harbors, least commonly during spring. Accidental in the interior. Three birds seen in Stanislaus County, Sept. 19, 1913, by J. Mailliard.

Authorities.—Gambel (*Pelecanus fuscus*), Jour. Acad. Nat. Sci. Phila., ser. 2, i., 1849, 227 (Calif.); *Willett*, Condor, vol. xii., 1910, pp. 171, 173 (breeding colonies on Anacapa and San Miguel ids.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 40 (s. Calif. ids.; habits, etc.); *Oberholser*, Auk, vol. xxxv., 1918, p. 62 (syst.; nomencl.).

SYMBOL alike of the sea's strangeness and of her prodigality, there is perhaps no other bird whose appearance would so perfectly assure the landsman that he had arrived as this uncouth Adonis of the ocean-front, the California Brown Pelican. We will concede, without argument, that the bird is impossible. It is an incarnate jest, if you will, a piece of apprentice work perpetrated by one of the lesser divinities of Nature's workshop. An adobe artist with an imagination like Doré has taken a perfectly good goose and tricked it out with a huge fish-net which it is pledged forever to wear, and the public is expected to laugh at the poor bird's plight. But somehow we do not laugh. The bird has accepted its lot with such becoming meekness; it is able to view life with such imperturbable gravity; above all, it has met its situation with such transcendent skill, that we can only wonder and applaud.

For what, after all, is more adroit than the flight of a Pelican? With three or four leisurely strokes the bird acquires a momentum with which he can glide with incredible accuracy just above the surface of the water. Or if he is hunting at a higher level, the bird is able to check his momentum, to put on brakes midair, in less than the distance of his own length, and to plunge with the speed of thought upon his finny prey. If the run of

fish is good, this feathered hydroplane heaves to upon the water. With beak held perpendicularly, or nearly so, he surveys the depths with tiny beady eyes, or thrusts again and again with a stroke as swift and sure as that of Cousin *Ardea*, he of the strong spear.

The Pelican, too, is the pledge and symbol of Nature's bounty. He is a wholesaler. Two—six—a dozen fish at a catch—or a bite—it is all one to him; and he is prepared to take care of an enormous haul. They are necessarily small fish which are handled by such means,—surface-feeders which the human "trade" scarcely begrudges. Pelicano is, per-

Taken on Anacapa *Photo by the Author*

THE CHARGE OF THE HEAVY ESCADRILLE

force, a peddler too. He has to share his good fortune, whether willingly or no, with certain light-fingered gentry, purse-snatchers and hangers-on. The Heermann Gull is the worst of pickpockets. One of these birds will attach himself to a Pelican and idle about by the hour watching his patron and victim, and hurrying up to snatch a share, even from the very throat of his host, whenever there is booty. Western Gulls sometimes indulge this practice, but they are less adept, and even, I have fancied, a little ashamed.

1972

Gifford, who gives us an interesting account[1] of their habits in the Galapagos Islands, says: "It was not unusual to see several Noddies fluttering excitedly about a pelican when it was fishing, and often sitting on its head while it swallowed the fish. Once I saw two on a pelican's head at one time. The pelicans never seemed to be annoyed, nor did the Noddies ever get any fish as far as I could see. Dusky Shearwaters would occasionally fly about a pelican, apparently to pester it, for one day I observed a pelican take refuge on top of a cliff from a number of them."

Taken on Anacapa Island *Photo by D. R. Dickey*

THE ANTEDELUVIANS

According to the same authority, these pelicans do not confine themselves to a fish diet. "On several occasions they were observed to pick up the bodies of large birds, after we had skinned them and thrown them overboard. In one case an immature pelican had got the bodies of two Galapagos Hawks into its pouch, and was unable to swallow them. Likewise it was unable to fly on account of the weight. It was probably grateful when we rowed up to it where it was sitting on the water, and removed the impedimenta, for it flew away joyfully enough afterward."

And the following bit from a quaint old account, attributed to Father Torquemada,[2] assures us that the Pelicano has ever been a useful bird.

[1] Proc. Calif. Acad. Sciences, 4th Series, Vol. II., pt. I., pp. 107-110.
[2] As published in "The Habitable World Described," 1788-1795, and excerpted by Frank S. Daggett, The Condor, Vol. X., July, 1908, p. 136.

The feathered inhabitants of "Monte-Rey" are being enumerated: "And alſo a particular ſpecies of gulls, that live on pilchards and other fiſh, equal in ſize to a very large gooſe, their bill a foot long, with long legs reſembling a ſtork [badly mixed here, Ed.], their beak and feet like thoſe of a gooſe. They have a vaſt craw, which in ſome hangs down like the leather bottles uſed in Peru for carrying water, in which craws they carry what they catch to their young ones. The friendly diſpoſition of theſe birds is ſomething ſurpriſing, for they aſſiſt one another when ſick or wounded, and bring that bird proviſion that is unable to ſearch for it. The Indians profit by this; for when they want a diſh of fiſh, they will wound and tie a gull to a particular ſpot, conceal themſelves, and, when they think all the proviſion is brought which other gulls deſigned, they advance and ſeize the contribution: ſuch are the myſterious

Taken on Anacapa Island *Photo by the Author*

NESTING COLONY IN LEPTOSYNE "GROVE"

ways of Providence for the ſupport of his creatures!" Fortunately, also, "Providence" has erased the name of "Poor Lo" from the list of Pelicano's pensioners.

When the pouch is full, or when a turn of the tide sends the quarry

Taken on Anacapa Island *Photo by the Author*

TAKING THE AIR

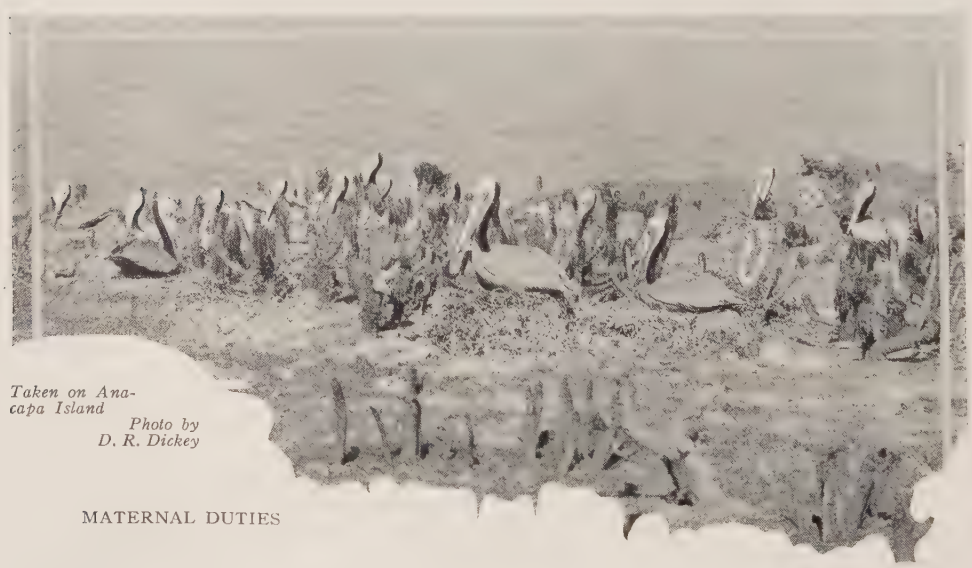
down for a season, the birds haul out on a sand-bar or other lonely spot and ruminate. Here they stand in solemn companies with bills depressed, for the weight of these members is quite too great to permit of their being carried incessantly at right angles; and here they survey an approaching stranger like myopic grandfathers peering over an array of befogged spectacles. Or else, if the way is quite clear, the Pelican turns his head about and lays his bill comfortably along his back for a snooze; or else, in the last stage of relaxation, he squats upon the ground and disposes of both neck and bill in a jack-knife fold which rests upon the back.

If the casual acquaintance with these fowls permitted by shore-line loiterings is seductive, a visit to their haunts at nesting time is rewarding in the extreme. Not elsewhere, save upon some separate planet, may the observer hope to obtain such an impression of the utterly different. Indeed, a Pelican rookery at the height of the season is a chapter from the Mesozoic age—nothing less. Here man is the outlaw, the anomaly; and, save for the dire portent of his presence, life in a pelicanry moves off in obedience to alien standards. Its very dimensions seem grotesque and unreal. There is no point of contact with previous experience; and the visitor, whether fortified by scientific purpose, or urged only by the vulgar curiosity which afflicts our kind, knows that he is an outsider, an intruder,

Taken on Anacapa Island *Photo by the Author*

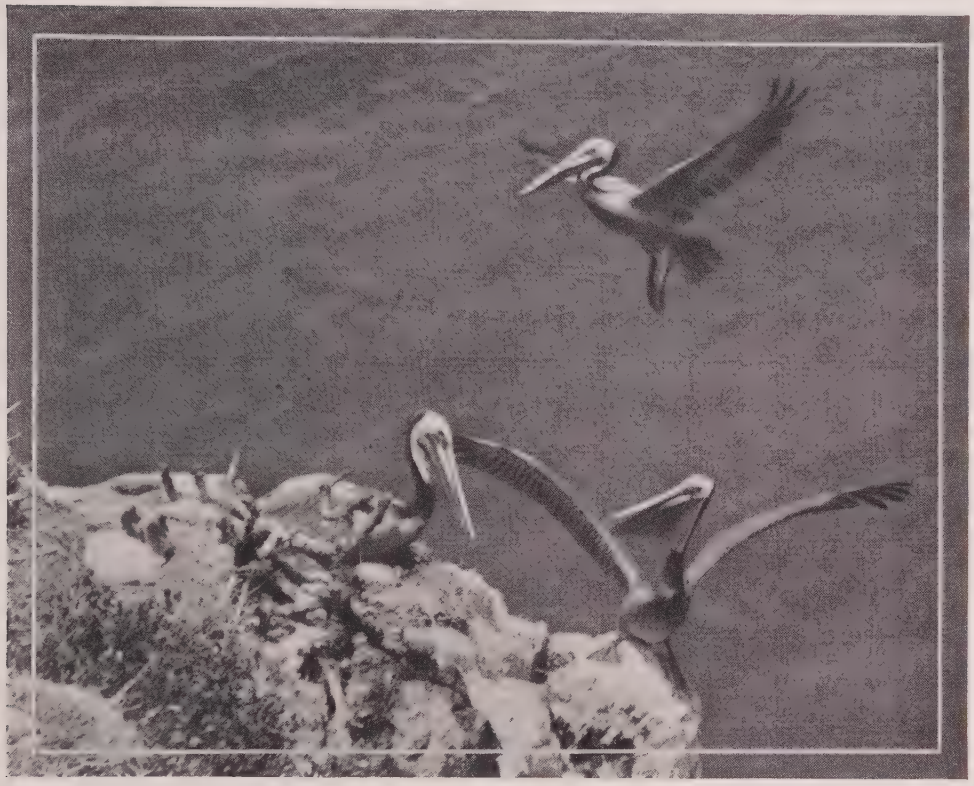
NEST AND EGGS OF CALIFORNIA BROWN PELICAN

a companion of gulls and ravens, before whom the law-abiding citizenry of this elder world stands silently reproachful.



Taken on Anacapa Island
Photo by D. R. Dickey

MATERNAL DUTIES



Taken on Anacapa Island *Photo by Donald R. Dickey*

CONGRATULATIONS! MRS. O'FLAHERTY. SHURE, OI JIST HEARD ABOUT THE TWINS

The author pleads no more serious a purpose than an oölogical quest, and the securing of some of these pictures, to justify a brief exploitation of a province of this elder Eden; and (with consummate hypocrisy, if you will) he urges that such visits be *not* repeated. For the truth is, Pelicans pay a fearful price—to the gulls—for any invasion—however intended-peaceful—of their colonies. A man is at best a potential marauder, and so long as his intentions are under suspicion, nests are uncovered and eggs grow cold or are snapped up by the predatory gulls. Indeed, your gull is the arch-hypocrite, and if his dupes, the brooding pelicans, make as though to return to their charges before the Larine devastation is complete, fresh alarms are raised. The wily gulls profess a mortal terror of man's presence, whereas their true aim is always to "beat him to it," once a nest is uncovered. It is for this reason, and for this reason only, that I solemnly urge either a substantial reduction of the gull population of our coasts, or else a practically absolute protection of all the major colonies of nesting sea-birds.

1977

But if you insist upon turning buccaneer "just for this once," man the thwarts and help us pull this gear from the launch over to the landing place. A benevolent Government, under necessity of maintaining an automatic light upon this dangerous headland, has provided a crude system of ladders whereby the intrepid, albeit camera-laden, may scale this 200-foot wall of basalt. The top of the island, once gained, is suddenly level. There is nothing visible save grass and sea and birds—these and quaint groves of a palm-like vegetable under whose scanty shadows the pelicans are huddled. It is incredible! a bird squatting upon a nest which rests upon the ground, and yet looms half as high as a palm tree! The illusion is perfect; but the "tree" is *Leptosyne gigantea*, a composite, which

Taken on Anacapa Island *Photo by Donald R. Dickey*

BILL

rises to a height of six or eight feet, and which supports on naked stems, two inches in diameter, a sudden crown of leaves, finely divided, like those of a carrot, and a few coarse yellow flowers.

We unlimber our photographic gear, and dedicate a leather case to

Taken on Anacapa Island *Photo by Dickey*

PERSIMMONS, PRUNES, AND PRISMS

such eggs as we may require, and then prepare to rush the colony for mass effects. Splendid! The whole earth seems to be in motion, and a thousand aeroplanes launch into the air. There is no noise of propellers nor yet of sputtering exhausts. Nature has perfected her models long since, and her motors meet the test of absolute silence. Pelicano, Model A, is a weird-looking craft, but a skyful of him is as efficient as so many swallows. There is no crashing of fusilages, and never an aileron impinges upon the rights of all that skyful. It is wonderful! awe-inspiring! It is only when the excitement has died down a little and the birds decide to settle again, that the show changes from grandeur to comedy. A pelican looking for a place to land is grotesque beyond the power of exaggeration. With legs spraddled out at divergent angles and heads drawn back, the birds are preparing for the inevitable, and you rather expect a series of crashes. The birds appear to also; but somehow no casualties result, and you come to suspect that it is just a pose intended to enhance the effect of a surprising deftness.

Soon the ledges are lined with grave senators, and the birds gather in open places to view with impeccable decorum the ravages of the ruthless human bipeds. But, really, you know, it is not nearly so exciting to rob a

colony of unresisting Quakers. Those bills might be terrible if they were plied in righteous indignation. The challenge of those great throats, if they were fiercely vocal, might rouse us to a corresponding fury. But this placidity is disarming. "I guess we've got enough, boys."

The nests are, some of them, amazingly large and high—doubtless the accumulations of succeeding seasons. Many I saw which were two or two and a half feet in height, while most of them were a foot or more. Some, however, were very scanty; and a few, mere handfuls of trash. The material used varied considerably, but might be described as a vegetable miscellany, with sticks, a few, or decayed stalks of the carrot-weed (*Leptosyne gigantea*) for a basis. While the birds evidently approve of the shade afforded by the *Leptosyne*, the advantages of such shade are often

Taken on Anacapa Island THE SOUTHEAST COLONY, FROM ABOVE *Photo by the Author*

offset by the difficulty which the birds experience in taking off; so that the most thick-set section of the carrot-weed was not occupied. It is noticeable, also, that the birds almost invariably face downhill in sitting—doubtless to facilitate taking off.

At the time of our visit (March 8th, 1922), incubation was for the most part advanced, though fresh eggs were common enough for our

modest requirement. Although usually described as "white," immaculate eggs of the California Brown Pelican are the exception. Indeed, the aspect of the eggs was singularly and unexpectedly varied. Fresh eggs were in most instances richly pigmented with continuous longitudinal streaks of dull reddish olive, evidently a direct derivative of blood. Often the point of origin of the streaking is quite one side of the apex of the egg; and as often the streaking ceases before reaching the smaller end. It is customary to call this streaking "blood marks," and to remove it in preparing specimens for the cabinet. It is, rather, however, to be regarded as the primitive pigment, the precursor of oörhodine, and we have preserved it religiously in the M. C. O. series as an exhibit of color-in-the-making.

Most pelicans' eggs soon become soiled; and as incubation advances are of a dirty brown color, more or less glossy. The resultant shade is determined primarily by the relative cleanliness of the parent bird, and also to a lesser extent by the character of the nest lining. Two varieties of this artificially imposed color are worthy of special mention. First and rarest is a rich dark gray-green pigment, which is derived from contact with wet seaweed. I have seen this dyeing in process, and am of opinion that certain ingredients of the fucoid react upon the lime of the shell, so that a liquescent blister is raised, which in drying becomes a handsome and, apparently, permanent green. The other variety of coloring matter is supplied by crude oil, doubtless oftenest derived from the soiled plumage of the parent bird, but often, also, from blobs of oil adhering to seaweed and other floating vegetation. Of this type we have examples which are a nearly uniform brownish black.

Elsewhere in these pages I have scouted the claim that eggs of northern sea-birds are ever "fishy," or unfit for use as food. Candor compels me to confess that in the person of the California Brown Pelican's egg, this theory has met its Waterloo. Twice I endeavored (in the only conclusive fashion) to defend my views, but the memory of those attempts is sufficient. I resign. The gulls can have 'em.

So far, also, as mere gastronomics is concerned, the gulls can have the hairless squabs which issue from the eggs. A young pelican is not black, like a cormorant, but rather of a livid reddish brown--say, Zulu-color, as contrasted with Hottentot. However, the color has nothing to do with the flavor, and we expressly deny the rights of the gull to gastronomic discussion of either of them.

Heigh ho! here we are on the top of the island yet, and the sun is sinking through its last octant. A smart breeze has sprung up from the north, and our launch has been compelled to anchor around on the south lee. There is nothing for it but to make our way over these cliffs with ropes. This is easy enough for mere humans, but cameras

and eggs are more "persnickety." With their objections patiently subdued, we pass the cliffs and find, on the south talus slope below, another colony, some 200 pairs, of nesting pelicans. These must be the pioneers of the island, for only here do we find young birds. And it is natural enough, when you think of it, that the first comers should choose the south slopes, sunny and well-sheltered, though how they can abide this incredible cactus—vicious and ubiquitous—passes comprehension.

Small colonies of these birds flourish (or languish) on Los Coronados Islands, just below our border. Of these Mr. Howell says:[1] "As the pelicans suffer much from the depredations of the gulls, fresh eggs from second layings may be found well into July. The young leave the nest when less than half the size of the parents, and it is quite ludicrous to watch the compact flocks of fluffy, solemn youngsters parading sedately about the rookeries. When the primaries are quite well grown, they frequently hop off a shelf of rock into one of the many patches of cactus, and it is not unusual to encounter one literally bristling with spines. When able to fly, but before ever having tried to do so, they will sometimes take to the air at the approach of danger, and go careening out to sea on unsteady wings, then manage to turn, and come shooting back on the wind. They are unversed in the art of alighting, however, and sometimes hit the cliff full speed, which is the signal for every gull in sight to sail happily down to investigate the dying bird. When camped near the colonies, one may see a line or wedge of these great birds go silently by at any hour of the night, undoubtedly belated homecomers from some far fishing ground."

No. 400

Pacific Man-o'-war-bird

A. O. U. No. 128. **Fregata minor palmerstoni** (Gmelin).

Synonyms.—FRIGATE-BIRD. PALMERSTON'S MAN-O'-WAR-BIRD.

Description.—*Adult male:* General color black, with greenish or purplish gloss above; duller, sooty, below; tail of 12 feathers. Iris brown; bill light purplish blue in life, lightening in the middle, darker on tips; gular pouch, capable of enormous distension during breeding season, scarlet; bare space about eye purplish blue; feet carmine above, orange below. *Adult female:* Somewhat similar to male, but underparts chiefly pure white; lesser and median wing-coverts, and hind-neck brown; "bill bluish horn-color; orbits and gular skin dark plumbeous with a tinge of violet." *Immature birds* resemble adult female, but have entire head and neck white, with upper

[1] "Birds of the Islands off the Coast of Southern California," Pac. Coast Avifauna, No. 12, by Alfred Brazier Howell, 1917, p. 41.

breast sooty. Length of adult about 965.2 (38.00); wing 640.1 (25.20); tail 450.9 (17.75); bill 108 (4.25); tarsus 25.4 (1.00).

Recognition Marks.—Gull size as to body; masterly flight, with plumage black or chiefly black and *deeply forked tail*, distinctive.

Nesting.—Does not breed in California. *Nest:* In colonies; a frail platform of sticks or twigs, laid in low bushes, cactus patches, or on the ground. *Egg:* 1, less commonly 2; chalky white or pale yellow, smooth or roughened by calcareous overlay. Av. size 69.5 x 47.4 (2.74 x 1.366). *Season:* Feb.–March.

Range of *Fregata minor*.—Tropical portions of the Pacific and Indian oceans.

Range of *F. m. palmerstoni*.—North central Pacific Ocean, breeding upon the Galapagos Islands, islands off the coast of Mexico, and in the mid-Pacific, Laysan, Marcus Island, etc.

Occurrence in California.—An occasional wanderer to our coasts at any season; many records.

Authorities.—**Newberry** (*Tachypetes aquilus*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 106 (coast of Calif.); *W. K. Fisher*, Bull. U. S. Fish Comm., vol. xxiii., pt. 3, 1906, p. 769 (desc. of breeding colony on Laysan Id.); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 21 (status in s. Calif.); *Oberholser*, Auk, vol. xxxiv., 1917, p. 468 (syst., nomencl.).

INASMUCH as the recorded appearances of the Man-o'-war-bird along the coast of California number less than a score, the observer is likely to boast his good fortune for a twelvemonth, and regard the honor as a sort of decoration *pro meritu ornithologica*, to be worn on state occasions ever after. The author won his (quite undeserved) "Order of the Frigate-bird" near Santa Barbara on the 12th of August, 1912, and took his second degree on the 24th day of the same month, in company with that bird-lover *par excellence*, Bradford Torrey, of sainted memory. On each occasion one got only a quick sense of regal power and ease before the vision vanished, lost in the eye of the gale. These northern wanderers appear to be for the most part two-year-old birds, showing a maximum of white in the plumage, and having, because of their immaturity, no part in the fierce domestic doings of the tropics.

Without doubt, the Man-o'-war-bird is the Master Wild Thing a-wing. While its expanse of wing may not be so impressive as that of the Albatross, and its speed possibly not equal to that of some of our Swifts, its grace and ease and mastery of the tumultuous air currents are without close parallel. Not only does it soar at times at such sublime heights as to appear a mere speck against the tropic sky, or to pass from sight altogether, but it can launch itself from an almost incredible elevation to snatch a flying-fish in midair, or to seize some object just below the surface of the water. And so nicely is this feat calculated, that observers testify it is accomplished without causing an appreciable ripple on the water's surface. In like manner, the bird's thirst is quenched

at some fresh-water pond or brackish pool, by a towering dive and dip, which would make shipwreck of this feathered projectile if it were not done with consummate skill. And not only can the Frigate fly swiftly, but so perfectly has it learned to adjust itself to the wind that it is able to maintain itself for hours at a time without change of position, and without apparent effort other than that of the automatic opening and shutting of the long, forked tail. Indeed, one observer in Florida claims that they sleep in this position, and declares that he has caught them by hand as they lay asleep on the wind near the top of a mangrove tree. The story may not be true, but it fits the appearances so nearly that its narrator could get away with it; and that, after all, is the instructive thing.

Man-o'-war-birds have yielded to the temptation which always besets the gifted; viz., to live at the expense of their fellows. They secure only a portion of their food by direct capture. For the rest they prey upon other birds, especially those equipped for taking large catches of fish, wholesalers, as it were, like the Boobies and the Pelicans. It is difficult to see why a sturdy, sharp-beaked fisherman like the Gannet should consent to share the product of its lawful toil with this pirate; but the Boobies are not the only bipeds who are impelled to pay tribute to a sharp eye and imperious gestures.

No. 401

Black-footed Albatross

A. O. U. No. 81. **Diomedea nigripes** Audubon.

Synonyms.—Gooney. Gony. Brown Gooney.

Description.—*Adult:* General color sooty brown, lighter (grayer) below, except on throat and chest; space all around bill grayish white, thence shading through grayish brown on sides of head and upper throat; anterior half of upper and lower eyelids dusky; posterior half white; that of the lower lid produced backward and downward as a decided white patch; lighter, nearly white, about base of tail; feathers of upperparts tipped with lighter gray, as though faded; primaries black with yellow shafts; tail-feathers blackish with white shafts, except on terminal portions. Bill dark reddish brown; feet black. *Young birds:* Like adult, but tail-coverts sooty black. Length of male 762-914.4 (30.00-36.00); wing 515 (20.27); tail 144 (5.57); bill length 108.3 (4.265), width at base 31.7 (1.25); tarsus 91 (3.58) (Loomis). Females average less.

General Range.—North Pacific Ocean. Breeds on islands northwest of Hawaii and on the Marshall Islands. Wanders to the coasts of China and Japan and on the American side from southern Alaska to the Tropic of Cancer.

Recognition Marks.—Eagle size; sooty plumage of adults and young; reddish brown bill; white face; black feet.

Nesting.—Does not breed in California. *Nests:* In colonies; single egg laid on bare sand or rock. *Egg:* White; often spotted or stained at the larger end with dull rufous (chestnut or russet). Av. size, 111 x 68.1 (4.37 x 2.68) (Richards); index 61.3. *Season:* November.

Occurrence in California.—Found irregularly upon the open ocean and irrespective of season along the entire coast. Specimen taken on Humboldt Bay in the summer of 1917 by C. I. Clay.

Authorities.—Vigors (*Diomedea fuliginosa*), Zool. Voy. "Blossom," 1839, p. 39 (Monterey); *Godman*, Monogr. Petrels, pt. v., 1910, p. 332, pls. 94, 95; *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 30 (status off coast s. Calif.); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. 2, pt. 2, no. 12, 1918, p. 71 (crit.; syst.); *Bent*, U. S. Nat. Mus., Bull. no. 121, 1922, p. 1, pls. (life hist.; desc. nest and eggs, etc.).

THE SOLACE of the ocean voyager—at least after novels and shuffle-board have lost their charm—is the sight of the Gooneys. These tireless watchers of the deep adopt our ship, almost without our knowing it, some thirty miles from shore, where the gulls abandon her to her wilful course across the vast Pacific. For the bare hope of refuse from the cook's galley, they will follow the ship for hours and days together, but they count it no hardship. It is sport, rather. Instead of plodding wearily in the wake, they throw great circles of flight about the beleaguered vessel, and seem thus in sheer wantonness to mock the labor of steam. Excelled in powers of flight by none, and rivalled only by the Man-o'-war-bird (*Fregata minor palmerstoni*, of the Pacific), the Albatross is at once the marvel and the despair of human attainment; attainment not merely by way of imitation—that were impossible—but in the matter of understanding. How *does* he do it? Apparently by a mere effort of will, certainly without visible propulsion, the bird skims low over the water, eluding with consummate skill the unevenly-crested waves, or else shoots aloft without a stroke upon those rigidly outstretched pinions.

Yet in spite of the fact that all of Ocean's untrammeled wastes are before him, and that abundant viands, fish and squids and sea-faring crustaceans, await his pleasure, this rover is singularly at our mercy. The tragedy of the Ancient Mariner was first of all a tragedy of bird-life. The confidence of an Albatross was wantonly betrayed and all the misfortune followed—in the story. In point of fact the betrayal, though not the retribution, has been a thousand times repeated. On certain ships it is considered great sport to shoot "Mollymawks"; and pump guns are far more destructive than crossbows.

But that is not the worst. Having the sea before him, the Albatross could, of course, let us alone if we were unworthy of confidence; but we have discovered his breeding haunts upon certain islands of the mid-Pacific. Here is what happened in one instance in the case of a related species, the Laysan Albatross, *Diomedea immutabilis*. It was on Marcus

Island (Lat. 24° 14′ N., Long. 154° E.), for a time under control of the Japanese, but later relinquished to the United States. "Disappointed in not being able to find guano by their crude methods, the Japanese developed a scheme to make a marketable commodity of the Goonies, by killing them and boiling them down in a great kettle to form a *fertilizer*, which they shipped to Japan, saving, however, the long wing-quills to sell as eagle-feathers for the decoration of women's hats; and the breast feathers were plucked off and sold by the pound. Under this treatment the colony has greatly dwindled, and in 1902 the birds were only killed for their feathers."[1]

In May, 1902, Mr. Walter K. Fisher with the U. S. Fish Commission steamer Albatross found the Black-footed and Laysan Albatrosses breeding upon the island of Laysan in immense numbers, variously estimated at from one to two million adults. His account of their nesting habits, together with their grotesque dances, or cake walks, reads like a passage from the Arabian Nights.[2] According to this authority, the Albatrosses consume about ten months of the year in nesting. The single egg is laid near the middle of November and is not hatched till February. The young require to be fed for six months before venturing abroad, so that it is not until the 1st of September that the hard-working parents may take a two months' vacation.

Taken on Laysan Island, T. H. *Photo by Walter K. Fisher*

ALBATROSSES ON LAYSAN: THE INTERVIEW

[1] The Auk, Vol. XXII., Jan., 1905, p. 99; Review of Bryan's "A Monograph of Marcus Island."
[2] W. K. Fisher, Habits of the Laysan Albatross, Auk, Jan., 1904, p. 1 ff.

It is, therefore, on account of the exactions of family cares upon the adults that immature birds, or "brown goonies," are much more frequently seen upon the high seas.

"By Executive Order No. 1019, dated February 3, 1909, the 'Hawaiian Islands Reservation' was established. This national bird preserve includes Laysan, Necker, and adjacent small islands, upon which great numbers of pelagic birds nest, such as Albatrosses, Shearwaters, and Terns. Persistent rumors have circulated in the newspapers of late, to the effect that Japanese were planning to land on the rookeries to destroy every bird obtainable, the feathers to be saved for various commercial purposes and the bodies to be made into fertilizer. The fact that not a few species, which are confined in the breeding season to these small islands, would thus be exterminated, makes the establishment of this preserve with little doubt the most important step, from a strictly ornithological standpoint, in the history of bird preservation in this country. The annihilation of *species* was threatened" (*The Condor, March, 1909*).

The fears expressed in the foregoing paragraph were unhappily realized that same season. A party of feather-hunters, Japanese, but acting under the orders of a certain dissolute German who had formerly been connected with the guano industry, landed on Laysan and proceeded to slaughter its feathered inhabitants. In January of the following year the U. S. revenue cutter Thetis visited the distant scene, found and captured the poachers, twenty-three of them, and returned to Honolulu with the miscreants and their booty, consisting of the plumes of upwards of quarter of a million birds. A subsequent expedition reported on the havoc wrought:[1]

Taken on Laysan Island, T. H. *Photo by W. K. Fisher*

THE DUET

"Here on every side are bones bleaching in the sun, showing where the poachers have piled the bodies of the birds as they stripped them of wings and feathers. In the old open guano shed were seen the remains of

[1] Bulletin No. 42, Biol. Surv., 1912.

hundreds and possibly thousands of wings which were placed there but never cured for shipping, as the marauders were interrupted in their work.

"An old cistern back of one of the buildings tells a story of cruelty that surpasses anything else done by these heartless, sanguinary pirates, not excepting the practice of cutting the wings from living birds and leaving them to die of hemorrhage. In this dry cistern the living birds were kept by hundreds to slowly starve to death. In this way the fatty tissue lying next to the skin was used up, and the skin was left quite free from grease, so that it required little or no cleaning during preparation.

"Many other revolting sights, such as the remains of young birds that had been left to starve and birds with broken legs and deformed beaks, were to be seen. Killing clubs, nets, and other implements used by these marauders were lying all about. Hundreds of boxes to be used in shipping the bird-skins were packed in an old building. It was very evident they intended to carry on their slaughter as long as the birds lasted."

Professor William Alanson Bryan adds: "This wholesale killing has had an appalling effect on the colony. No one can estimate the thousands, perhaps hundred of thousands, of birds that have been wilfully sacrificed on Laysan to the whim of fashion and the lust for gain. It is conservative to say that fully one-half the number of birds of both species of Albatross that were so abundant everywhere in 1903 have been killed. The colonies that remain are in a sadly decimated condition. Often a colony of a dozen or more birds will not have a single young. Over a large part of the island, in some sections a hundred acres in a place, that ten years ago were thickly inhabited by Albatrosses, not a single bird remains, while heaps of the slain lie as mute testimony of the awful slaughter of these beautiful, harmless, and, without doubt, beneficial inhabitants of the high seas."

In 1913 our Mr. George Willett was commissioned by the U. S. Bureau of Biological Survey to visit Laysan, to report upon the Albatrosses, which he found to be slowly recovering in strength; and to destroy the contraband plumage, of which he burned eight tons.

Our Nipponese friends must pardon us if we continue to deplore such episodes as these, until such time as we have substantial proof that a repetition will be forever impossible.

"*Ah! well aday! What evil looks*
Had I from old and young!
Instead of the cross, the Albatross
About my neck was hung."

No. 402

Short-tailed Albatross

A. O. U. No. 82. **Diomedea albatrus** Pallas.

Description.—*Adult:* Body plumage white; head and neck white, more or less washed, especially behind, with tawny yellow; wings and tail sooty gray or dusky, with admixture of white in varying proportions; exposed portions of flight-feathers and rectrices chiefly dusky; no re-entrance of feathers on sides of mandible; outline of feathering at base of bill nearly even on culmen and sides; bill pale reddish yellow; feet livid flesh-color, or pale bluish, drying darker. *Young:* Entire plumage sooty brown, lighter (inclining to sooty gray) on chin and belly. Length of adult about 914.4 (3 feet); wing 508 (20.00); tail 146.1 (5.75); bill 127-152.4 (5.00-6.00) in length; depth at base 50.8 (2.00); outline of culmen concave.

Recognition Marks.—Eagle size; white plumage, large beak of adult; nearly uniform sooty plumage of immature bird *without* white "face" (but chin whitish).

Nesting.—No authentic description. *Egg:* Dull white stained heavily, or not, at larger end with russet.

General Range.—North Pacific Ocean from Lower California and China to Bering Strait. Breeding grounds unknown. (Evidence is lacking that eggs from the Bonin Islands represent any other species than *D. immutabilis.*)

Occurrence in California.—Of common occurrence well off-shore, presumably along the entire coast. Several records of occurrence off Monterey; has been seen on San Diego Bay, Monterey Bay, and San Francisco Bay.

Authorities.—Lawrence (*Diomedea brachyura*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 822 ("coast of Calif."); *Godman*, Monogr. Petrels, pt. v., 1910, p. 326, pl. 92; *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 17 (status in s. Calif.); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, ii., pt. 2, no. 12, 1918, p. 74 (crit.; syst.).

"At length did cross an Albatross,"

NO ONE who has not suffered the pangs of solitude, or the worse pangs of ill-assorted company long endured, knows with what glad acclaim a fellow mortal may be hailed. In a cityful we should not deign him a glance, this brother in jeans, but here at the edge of the wilderness, this uninhabitable waste through which we have been plodding for weeks on end, a merest man seems a creature wrought on heroic lines, a very demi-god. He is for us an authentic outpost of life and a dear pledge of that wholesome, myriad-pressing, human contact for which our hearts have come to ache. So upon the trackless ocean, the sight of a bird brings to the watcher a sudden electric thrill. Our eyes devour the vagabond with quick apprehension, and there springs up within us a world-conquering, class-obliterating sense of fellowship.

"As it had been a Christian soul,
We hailed it in God's name."

Those who have studied pelagic species just off shore—and there are

no more fertile fields for such study than those afforded by several of the gregarious species of these ocean wanderers—can form little conception of the average desolation of the oceanic wastes. Dr. T. W. Richards, an experienced and zealous observer, gave us the most adequate expression of it when he testified[1] that during a voyage of 12,000 miles, from San Francisco to Yokohama via Honolulu and Melbourne, with the exception of the waters adjacent to Australia, where these birds abound, he saw not over one hundred pelagic birds all told,—one bird every hundred miles! Yet in all probability ten million albatrosses and a hundred million shearwaters and a billion petrels were at that very time scouring the seven seas. It takes a good many sea-birds to go around if all seafaring men are to have a comforting glimpse of one now and then.

Truth to tell, the Tubinares are more prevalent in those latitudes of which the poet testified when he said:

"And a good south wind sprung up behind."

Wind is a prime requisite of Diomedeine happiness, and it is amid the roaring Forties of the Antarctic seas that these birds appear to best advantage. Every Albatross has, of course, adequate means of propulsion, a virtual "auxiliary engine," capable of vibrating the bird's enormous "planes," to cover a flaw in the wind, or to execute a quick movement; but literal sailing, or gliding upon the wind, *without propulsion*, is its ordinary method. The stouter the gale the more certain the bird's advance against it, for nature has taught the bird a subtle alchemy whereby it can resolve the forces of the wind so that the upthrust plus gravity much more than balances the resistance of the onsweep, to the end that the bird rides splendidly against the wind without other effort than that of holding the wings at a certain angle. This claim was loudly scouted once, but more attentive observation has abundantly confirmed it. It is the principle of stream lining, and though no aëronautical engineer claims to have mastered it in practice, the bird's secrets are being endangered.

"And round and round it flew."

Great circles of flight not only assist the Albatross in covering more "ground," but apparently enable it to utilize with least effort the pressure of the wind. For lack of objects of comparison, one finds it difficult to estimate the velocity attained by these speed-kings, yet they will weave to and fro across the wake of a vessel, or throw circles around it, which cast shame upon the mightiest efforts of men,—and all without flapping a wing. It is in making a sharp turn that the professional skill of the Albatross appears to best advantage. Every one knows by now that in making a turn the aviator tilts, or "banks," his machine in the direc-

[1] The Condor, Vol. XI., Jan., 1909, p. 5.

tion of turning. The sharper the turn the sharper the tilt. It is declared that the Albatross can accomplish an absolute turn; that is, by assuming the perpendicular, with one wing-tip in the water and the other pointed to the zenith, it can reverse its direction instantly without allowance for strain. But while the Albatross is a good sailor, he is a poor oarsman. When the wind fails, the birds are becalmed, and they sit the waters, it may be for days at a time, rather than try to endure the exertion of a labored flight. Indeed, in default of wind, the bird finds great difficulty in rising from the water at all, even though assisted by powerful strokes of the feet.

Doubtless Coleridge erred when he said of his avian hero:

"In mist or cloud, on mast or shroud,
It perched for vespers nine,"

for the Albatross, unlike the harbor gull, is no halyard loafer; but no doubt on occasion

"It ate the food it ne'er had eat,"

in what fashion we may learn from Dr. Richards' illuminating account:[1]

"To the ornithologist on shipboard, the most interesting period is just after meal hour, when the cooks are clearing out the 'galley.' Ever on the alert, no suitable morsel escapes the hungry horde, and it is wonderful how accurately they can pick out the 'wheat from the chaff,' no second glance being given to the odds and ends unfit for food. But with all their eagerness to be first at the feast, the prizes go to the ones that can stop and *alight* the quickest. And most of them make a bad mess of it: swooping rapidly to the coveted spot, they find it difficult to check their speed, and many have to pass and circle back again. With those more fortunate, or expert, wings are thrown suddenly back, the tail is wide-spread and depressed, and—a most comical effect—the broad, webbed feet are expanded and thrust out forward, exactly as a skater digs his heels in the ice to stop his headway. Once on the water, the wings are kept partly expanded and raised high over the back, the wind's levitation thus bearing most of the weight. Actually, the birds now *walk on the water*, paddling with the big feet quite sufficing to lift the bodies clear and, gulping food rapidly as they go, the whole performance is most grotesque. With all this excitement, there is no noise; in a few moments the last scrap has disappeared, a hundred wings are extended, and, with a final 'push,' each bird rises lightly to windward, resuming his tireless vigil in our wake."

Of the Short-tailed Albatross in particular, we may only say that it occasionally appears off our shores—perhaps oftener and at nearer range than any other species; that it enjoys a more northerly range than any other species; and that it breeds on certain of the smaller islands off the

[1] Condor, Jan.-Feb., 1909, pp.7-8.

coast of eastern Asia. The best-known breeding stations are—or were—upon the Bonin Islands, which lie some 500 miles southeast of Japan and are administered by the Japanese Government. Concerning the treatment accorded to her feathered wards, Nippon's confession (when she is moved to confession) must be,

"And I had done a hellish thing."

No. 403

Fulmar

No. 403a Pacific Fulmar

A. O. U. No. 86b. **Fulmarus glacialis glupischa** Stejneger.

Synonyms.—GLUPISCH (Russian name). MOLLEMAWK. MOLLY MAWK. WHALE-BIRD.

Description.—*Adult, light phase:* Head and neck all around, rump, and underparts white; remaining upperparts (the mantle) ashy gray or neutral gray, blackening on exposed quills. *Adult, dark phase,* and *Immature:* Entire plumage neutral gray or sooty plumbeous. Every gradation between these two plumages exists, the commonest being neutral gray above, lightening on head, neck, and rump, with remaining plumage (except the lores) white. The lighter birds are probably older, and the whole "phase" scheme may resolve itself into a matter of age. Bill yellow tinged with greenish; feet yellowish gray. *Downy young:* white. Length (of 10 Monterey specimens) 435.9 (17.16); wing 301 (11.85); bill, length 36.1 (1.42), depth at base 16.7 (.66); tarsus 48.8 (1.92).

Recognition Marks.—Crow size; but more naturally comparable to gull; ashy gray and white, or bluish sooty, plumage; pelagic habits; stouter bill and more robust proportions (especially of head) as compared with Shearwaters.

Nesting.—Does not breed in California. *Nests* in colonies. *Egg:* Single, oval or elongate ovate, of rough chalky texture; white; laid on bare rock or in crevice in cliff. Av. size 71.1 x 50.8 (2.80 x 2.00). *Season:* May 15–June 15.

Range of *Fulmarus glacialis.*—North Atlantic and North Pacific oceans.

Range of *F. g. glupischa.*—Breeds at least upon the Commander Islands; winters from the Aleutians south to Lower California.

Occurrence in California.—Common in migrations and in winter upon the ocean, at least from Monterey southward and at varying distances from shore. Occasionally visits harbors, as San Francisco Bay and Santa Barbara (several records). Found upon the fishing banks 60 miles from San Pedro by the thousands (Howell).

Authorities.—**Cooper** (*Fulmarus pacificus*), Am. Nat., vol. iv., 1871, p. 758 (off Monterey); *Godman,* Monogr. Petrels, pt. iv., 1909, p. 270, pl. 78; *Howell,* Pac. Coast Avifauna, no. 12, 1917, p. 30 (s. Calif. ids.); *Loomis,* Proc. Calif. Acad. Sci., ser. 4, ii., pt. 2, no. 12, 1918, p. 87 (crit.; syst.).

WHILE Fulmars of both species are of regular occurrence in fall and winter along our coasts, a first-hand knowledge of them is not often vouchsafed to any but fishermen whose work takes them to offshore banks, or at least outside the kelp-line. Occasionally, however, these birds do

venture into harbors. Willett has taken them from the terminal of the Los Angeles trunk sewer at Hyperion. Mr. C. H. Anthony once pursued and captured by hand in San Diego Bay a specimen in apparently sound condition, too stupid or too confiding to escape by flight. Mr. White and I saw six Fulmars, all in the dark phase of plumage, from Stearns Wharf, at Santa Barbara, on the 23rd of December, 1911. They presented a singularly stolid appearance as they sat the water with bills nearly level or slightly down-turned, and floated within thirty feet of us.

The veteran ornithologist, Mr. A. W. Anthony, made a careful study of the Fulmars on a well-known fishing-bank ten miles west of Point Loma, and we are indebted to his report[1] for the following facts:

Fulmars are usually found associated with Shearwaters, especially with *Puffinus opisthomelas*, though in much smaller numbers, usually in the proportion of about one to fifty. They have much the same habit of flying close to the water, with alternating flap and sail, and with the plane of the wings inclined sharply. There is, indeed, little to distinguish Fulmars from Shearwaters, save the shorter, less pointed wings, and the stouter proportions of the body.

The staple food of Fulmars is the jelly-fish; and their occurrence in winter is pretty largely determined by the relative abundance of Medusæ. The caloric value of this ration is very slight, to atone for which the birds are obliged to consume enormous quantities. A Fulmar, discovering a medusa of a certain giant species, will alight beside it and gorge itself until it is unable to rise from the water.

Fish, however, vary the Fulmar's diet, and no sort of animal food is rejected. "Unlike the Shearwaters, they seldom pass a craft without turning aside to at least make a circuit about it before flying on. If the vessel is a fishing sloop sounding on the banks, the chances are in favor of the Shearwaters being forgotten and allowed to disappear in the distance while the Fulmar settles lightly down on the water within a few yards of the fisherman. The next Fulmar that passes will, after having made the regulation circuit, join the first until within a few minutes a flock of six or eight of these most graceful and handsome Petrels have collected, dancing about on the waves as light and buoyant as corks. As the lines are hauled up after a successful sound, the long string of often twenty to thirty golden-red fish [rock cod] are seen through the limpid water while still several fathoms in depth, and great excitement prevails. Any Fulmars that have grown uneasy and have started out on the periodical circuit of the craft immediately alight a few yards to windward. Those that are on the water and have drifted away hasten to the spot with wings outspread and feet pattering along on the water."

[1] "The Auk," Vol. XII., April, 1895, p. 100-105.

Some of the fish burst upon reaching the surface, through the relief of pressure, and upon such hapless floaters the Fulmars fall voraciously. First the eyes and then the entrails are eaten, and the greedy birds will defend themselves with spirit against the envious Herring Gulls, or even for a time against the Short-tailed Albatross himself. Detached bits of flesh are followed to a depth of eighteen inches; but below this depth, even though assisted by half-open wings, the Fulmar's buoyant plumage will not permit it to go.

Full-fed birds may be easily captured, and when placed on deck are, like most Tube-noses, unable to find sufficient fairway for flight. In this plight they hasten with upraised wings to the rail, and proceed to lighten the ship by disposing of the contents of the stomach. Their actions in such circumstances are so like those of seasick landsmen as to be extremely amusing. The Petrel has, however, a very forgiving—or forgetting—spirit. When assisted over the rail, he will proceed to fill up again as though nothing had happened.

Of the bird's occurrence in its breeding haunts on the Commander Islands, Stejneger writes:[1] "The 'Glupisch' is one of the commonest summer visitors to the islands, and breeds in enormous numbers in suitable places, that is to say, on high and steep rocky bluffs and promontories boldly rising out of the sea 300 to 800 feet high, and I have spent hours under their rookeries listening to their whinnying voice and watching their high and elegant flight in sailing out and in and around the cracked rocks like bees at an immense bee hive."

No. 403b Rodger's Fulmar

A. O. U. No. 86.1. **Fulmarus glacialis rodgersi** Cassin.

Synonyms.—GLUPISCH, etc., as in preceding species.

Description.—*Adult, light phase:* Mantle (middle of back and wings) and tip of tail above, coarsely mottled sooty gray and white; wing-quills blackening on exposed tips; remaining plumage pure white. *Adult, dark phase,* and *Immature:* Uniform sooty gray, darker and less plumbeous than in foregoing species. Plumage changes imperfectly differentiated. Dimensions as in *F. g. glupischa* or perhaps a little larger.

Recognition Marks.—As in preceding species, darker or with mottled mantle.

Nesting.—Does not breed in California. *Nests* in colonies. *Egg:* Single; rough chalky white; laid on rocky ledge. Av. size 73.66 x 50.3 (2.90 x 1.98). *Season:* c. June 1st.

General Range.—North Pacific Ocean and Bering Sea with adjacent portion of the Arctic. Breeds (at least) upon the Pribilovs and Wrangel and Herald islands; winters south to San Diego.

Occurrence in California.—A winter visitor along the coast, usually in company with the preceding species.

[1] Bulletin, U. S. Natl. Mus., No. 29, p. 95.

Authorities.—Anthony (*Fulmarus glacialis rodgersi*), Auk, vol. xii., 1895, p. 107 (off San Diego; habits); *Godman*, Monogr. Petrels, pt. iv., 1909, p. 273, pl. 79; *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 17 (occurrence off coast of s. Calif.);

THICK feathers make warm birds. Our interest in Rodgers' Fulmar has been aroused by the fact that its upper plumage presents a mottled appearance which serves to differentiate it from that of the leaden-colored "Glupisch"; but the bird's interest must be very definitely centered on the question whether feathers of a given weight or down of a given thickness will enable it and its offspring to withstand the low temperatures and outbreaking blizzards of Herald Island and Wrangell, where it makes its summer home. Wrangell! Say! this bird may be stupid and its skull as thick as its feathers, belike, but doesn't that iron word move you to envy? Bird of the stout heart! Who would not be cradled in that land of mystery, where icebergs crash on granite and the aurora borealis flares! California is good enough in winter, but O, you enchanted island of the midnight sun!

No. 404

Pintado Petrel

A. O. U. No. [102]. **Daption capense** (Linnæus).

Synonyms.—Cape Pigeon. Cape (of Good Hope) Petrel. Checkered Petrel. Damier. Cape Fulmar.

Description.—Terminal third of tail and wings, except secondaries, plumbeous black; remaining plumage white; the back, rump, and upper tail-coverts marked with spots of plumbeous black. Bill and feet black. Length 381 (15.00); wing 273.05 (10.75); tail 114.3 (4.50); bill 33 (1.30); tarsus 41.9 (1.65).

Recognition Marks.—Teal size; checkered pattern of back distinctive.

Nesting.—On Kerguelen and the South Orkneys. Description not available.

General Range.—Southern seas north to Ceylon, central Brazil and northern Peru; accidental off California, Maine, and Great Britain.

Occurrence in California.—A wanderer taken off Monterey. One record.

Authorities.—Lawrence (*Procellaria capensis*), Ann. Lyc. Nat. Hist. New York, 1853, p. 6 (off Monterey); *Godman*, Monogr. Petrels, pt. iv., 1909, p. 276, pl. 80; *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 91 (crit.; syst.); *Bent*, U. S. Nat. Mus., Bull. no. 121, 1922, p. 49 (life hist.).

THE EARLY annals of West American ornithology are cluttered up with records of strange Tube-noses taken "off the coast of California" or "off the coast of Oregon" or "at the mouth of the Columbia River." For one thing, early sea captains, enjoined by wistful friends to remember

the home "cabinet," picked up all sorts of curious looking fowls as they rounded Cape Horn, and turned them in at their destination, Monterey or Astoria, as the case might be. The home folks acclaimed these mementoes of the mysterious wonderland of the West, and labeled them "California." On the other hand, the Tube-noses are the earth's great wanderers; and an Albatross or a "Cape Pigeon," setting out without chart or compass from some distant Antarctic rock which gave him birth, is liable to turn up most anywhere from Godhaven to Urup (Id.). The truth regarding the individual case lies now here, now there. A specimen of the Pintado Petrel is said by Lawrence to have been taken by Colonel Pike "off Monterey." Perhaps it was; though how far off, deponent sayeth not.

The Checkered Petrel is among the most active and best known birds of its kind, while its highly variegated black and white plumage renders it the most conspicuous of the entire group.

No. 405

Pink-footed Shearwater

A. O. U. No. 91. **Puffinus creatopus** Coues.

Description.—Upperparts sooty slate, blackening on wings and tail, varied by lighter or whitish edging, in coarse pattern on back, shading broadly on sides of neck and sides; under tail-coverts uniform sooty; remaining underparts white, purest centrally, dusky encroaching variously on tips of feathers, especially on sides of throat and lower belly; (immature?) lining of wings white mottled with sooty, the axillars chiefly sooty; no white on inner webs of primaries. Bill pale yellowish flesh-color, blackening on nasal tube, culmen, and tip; feet flesh-colored, more livid than in *carneipes;* nails whitish with brown tips. Length (av. of 10 Monterey specimens) 460 (18.11); wing 325 (12.79); bill, length 42.6 (1.68); depth at base 16.6 (.65); tarsus 54.3 (2.14).

Recognition Marks.—Crow size, but appearing gull size; the commonest of the larger "black-and-white" shearwaters, much larger than *P. opisthomelas.*

Nesting.—Undescribed.

General Range.—Eastern Pacific Ocean, from the Juan Fernandez Islands (Chile) north, commonly, to Monterey, and rarely (?) to coast of Washington.

Occurrence in California.—Abundant forager at varying distances off-shore, north commonly to Monterey and more rarely (?) to Pt. Arenas. Occurs casually in February and commonly from May to November, often in mixed flocks with *P. opisthomelas, P. griseus,* etc.

Authorities.—**Coues** (*Puffinus creatopus*), Proc. Acad. Nat. Sci. Phila., vol. xvi., 1864, p. 131 (orig. desc.; type locality, San Nicholas Id.); *Willett,* Pac. Coast Avifauna, no. 7, 1912, p. 18 (status off coast of s. Calif.); *Oberholser,* Auk, vol. xxxiv., 1917, p. 471 (syst.; nomencl.); *Loomis,* Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 109 (crit.; syst.).

The Pink-footed Shearwater

THOSE who are only slightly familiar with the phenomena of bird migration often wonder why the process is not reversed; i. e., why the Southern Hemisphere does not send its birds north to "winter" (in our summer). The situation is a complicated one, and we may not press for the solution here, save as it affects one group. So far as the Tubinares are concerned, the answer is a clear one: It does. Since the Southern Hemisphere is also the aqueous hemisphere, it is natural that these strictly pelagic species, comprising the "ocean wanderers," should have their center of abundance there. But Antarctica in her winter is even more inhospitable than Arctica in ours; hence, the pronounced tendency of tube-nosed birds to wander north at apogee. This tendency has become a fixed habit of migration in the case of the *Puffinidæ*, the Shearwaters. Many of those reared at high southern latitudes fall back upon the north temperate zone for their winter sustenance, and even some reared in the northern tropics, like our own *P. opisthomelas*, or *P. auduboni* of the Bahamas, range further north for the bulk of the year.

Our knowledge of such movements is largely supplemented by the flotsam of dead bodies cast up on our beaches. Occasionally these floaters are so numerous as to arrest attention; as in the summer of 1908, when Mr. J. H. Bowles discovered that many species of sea-birds off the coast of Washington were suffering from an enteric parasite which notably depleted their ranks. But the ordinary movements of the Shearwaters, conducted as they are upon so vast a scale, are attended with a loss of life from natural causes of accident and decrepitude, which line the beaches

Taken near Santa Barbara SHEARWATERS AT REST *Photo by the Author*

MOSTLY DARK-BODIED, BUT THE LIGHT BIRDS ARE SURMISED TO BE PINK-FOOTS

with an instructive record. An unseasonable storm will take added toll of even such hardened veterans as these; and the attendant mortality is reported in headlines next day on shore.

The Pink-footed Shearwater was originally described by Dr. Elliott Coues, from a specimen taken by our Dr. J. G. Cooper in July, 1863, off San Nicolas Island. It proves, however, to be a regular component of those enormous shoals of southern-bred shearwaters which annually flood our coasts. Appearing as early as the end of February, the end of the Antarctic summer, they do not become common till the end of May or early June; while those which are still lingering with us at the end of November may be assumed to be immature or non-breeding birds.

The Farallon Islands are assigned by the A. O. U. as the northern limit of their occurrence, but I once found a stranded specimen on the coast of Washington above Gray's Harbor; and there really is no reason why they should not accompany their friends, the Sooties, all the way to Alaska. Of the breeding range of *P. creatopus* little is known, but it is surmised to be somewhere along the coast of southern Chile.

No. 406

Black-vented Shearwater

A. O. U. No. 93. **Puffinus opisthomelas** Coues.

Description.—(General coloration much as in preceding species). *Adult:* Upper plumage dark sooty brown to blackish, lighter forward, blacker behind, shading on sides of head, neck (often nearly meeting across chest), and breast, and on sides, to white of remaining underparts; under tail-coverts and crissum, just short of vent, sooty brown; lining of wings white, or dusky-flecked; the axillaries broadly tipped with sooty. Bill slender, blackish above (in the skin), lighter below; tarsus behind and outer toe blackish; tarsus in front and inner toes, with webs (drying) yellowish. Length (av. of 10 Monterey specimens): 373 (14.69); wing 237.3 (9.34); bill, length 37.6 (1.48), depth at base 11.7 (.46); tarsus 45.5 (1.79).

Recognition Marks.—Teal size; but appearing larger; black-and-white, the smallest of the local shearwaters; very like *P. creatopus* in color pattern, but white of underparts clearer and more extensive save for sooty more broadly encroaching on sides of neck and breast.

Nesting.—Does not breed in California. *Nests* in colonies. *Egg:* Single; elongate ovate; white; laid at end of burrow 2 to 8 feet in length. Av. size 59 x 39.8 (2.32 x 1.56); index 67.2. *Season:* c. April 10.

General Range.—Pacific Ocean off coast of North America. Breeds on islands adjoining Lower California and western Mexico; migrates and forages along coast of California and north to Vancouver Island.

Occurrence in California.—Abundant migrant and forager from July or August to late April.

Authorities.—Ridgway (*Puffinus gavia*), Proc. U. S. Nat. Mus., vol. iii., 1880, p. 223 (coast of Calif.); *Anthony*, Auk, vol. xiii., 1896, p. 223 (habits, nesting, etc.).

NONE of the larger species of Petrels nest along our coasts; but *opisthomelas* is such a near neighbor when at home, and so frequent a visitor at other times, that we claim the right to make careful inquiry as to his appearance and conduct. Of its external aspect we need only say that it is black above and white below with a sooty crissum, and that it is the smallest of the four commoner species of Shearwaters which frequent our coast. It is highly gregarious, and R. H. Beck, writing from Monterey, regards it as only less abundant than the Sooty Shearwater (*P. griseus*). Its abundance increases as we go southward, and vast companies of unmixed *opisthomelas* occur off San Pedro or San Diego Bay.

To Mr. A. W. Anthony, then of San Diego, who in the Nineties made such a careful study of pelagic bird-life off the coasts of southern and Baja California, we are indebted for our only intimate knowledge of this species.[1] He encountered them as breeding birds first on the island of Guadalupe, which lies some 220 miles south of San Diego and 65 miles offshore. Here, in company with Cassin Auklets and Xantus Murrelets, they occupy thousands of vapor-holes and miniature caves which honeycomb gigantic lava cliffs 3000 feet in height. Mr. Anthony was first attracted to their presence by the sound of familiar notes heard in the early evening, as his schooner lay at anchor beneath these crags. The outcry soon increased to an uproar. "It would be impossible to describe accurately these notes. They were a series of gasping wheezy cries, resembling somewhat the escape of steam through a partly clogged pipe, uttered in a slightly varied key and repeated from four or five, to ten times. During calm weather in January, February, and March flocks of a dozen to several hundred of these Shearwaters often collect on the water well offshore and at such times I have heard the same notes from two or more birds as they chased each other, half running, half flying, over the water. From the notes that came from the cliffs I thought that the birds were chasing one another, and a little later many of them came down to the water and were occasionally seen as they flashed by our anchor light. After an hour or so the outcry somewhat subsided and I think most of the birds went offshore to feed, returning before daylight, for during nearly two weeks spent cruising about the island only one flock of Shearwaters was seen during the daytime."

The observer later found that the Shearwaters were silent in their burrows, but repeated their outcries as often as they emerged at night, or were disturbed by intruders.

[1] As set forth in "The Auk," Vol. XIII., 1896, pp. 223-228; and Vol. XVII., 1900, pp. 247-252.

On Natividad Island, some 200 miles further south and close inshore, a much larger colony was encountered; and this, by reason of the friable nature of the soil, permitted closer study. The breeding season was at its height on the 10th of April, when each burrow contained either a pair of Shearwaters and no egg, or else one bird sitting on the single egg.

The distinction is a noteworthy one, and I dwell upon it (chiefly upon my own responsibility) because Shearwaters, in common with most other Petrels—and, indeed to some extent with the unrelated *Alcidæ*—enjoy an extended honeymoon during the period preceding the arrival of the egg. The early phases of courtship take place upon the ocean; but after the all important decision is made (for that year at least), the happy couple go ashore and renovate the old tunnel, or else sink a new shaft. The burrow, though not more than a foot and a half below the surface of the ground, proceeds with many a twist and turn to a length of ten feet, or less if the soil is stubborn. The nuptial chamber may or may not boast a slight carpet of twigs or green leaves.

Work on this tunnel has been carried on intermittently at night. When it is completed the husband remains with the bride and expectant mother for at least a month, faring forth with her only at night in quest of food. In some species, as for instance, *P. cuneatus*, a week's absence from the burrow on the part of both parents immediately precedes the deposition of the egg; but the prevalence of this habit is not clear, or at least not certainly made out in the case of *P. opisthomelas*.

After the arrival of the egg the male absents himself by day thenceforth, returning well after dark, either to feed his mate or else to change places with her for the night. [Careful records on this point are woefully lacking in the case of most Tubinares.] It is this arrival and interchange, varying endlessly according to the length of the daily wandering, which occasions the nightly uproar.

When the chick is hatched and during the days of tender infancy, one parent remains with it constantly. A little later one parent mounts guard by day, while both hunt at night. Later the gargantuan appetite of the youngster requires the ministering service of both parents day and night, while the chick's abundant down enables him to weather the rigors of his subterranean cellar quite alone.

Mr. Anthony sets the average date of fresh eggs for this species as early March,[1] but the birds are often seen in abundance in more northern waters at this season, or even much later. Nesting is, therefore, either very irregular as to date, or else varies with the different colonies. Each nesting island is a law to itself, and each season imposes its own restraints. Of course there is a marked accession of numbers

[1] Auk, Vol. XVII., July, 1900, p. 252.

when the new crop arrives in late July. Fortunately [!], this is also the season of abundant fare. Vast shoals of herrings, anchovies, and surf-fish become enamored of our fascinating shores, and are closely followed by the rapacious host of Shearwaters. Prudence usually forbids a closer approach than the kelp-line; but if the fish are reckless, so are their persecutors. I have seen thousands settle within rifle shot of the beach; and Anthony tells of a company at Cape Colnett which fought with the breakers for certain coveted delicatessen.

No. 407

Dark-bodied Shearwater

A. O. U. No. 95. **Puffinus griseus** (Gmelin).

Synonyms.—Sooty Shearwater. Whale-bird.

Description.—*Adults:* General plumage dark sooty brown, blackening on distal scapulars and wings, lightening (sooty gray) below, lightest, sometimes nearly white, on chin; lower eyelid touched with white; axillars sooty, but *lining of wings chiefly white* with some dusky marbling. Bill comparatively large and stout, black; tarsus black outside, and outer toe black on the outside; tarsus inside, the inner toe, and the outer toe on the inside, yellow; the webbing black (or perhaps yellow in breeding season, *auct.* Buller). Length (av. 10 Monterey specimens): 465 (18.30); wing 287 (11.29); bill 42.5 (1.67), depth at base 13.5 (.53); tarsus 57.1 (2.25).

Recognition Marks.—Really teal length, but appearing gull size by reason of stout body and long wings; dusky plumage; rapid flight with alternate flap and sail; follows surface of water closely; appears usually in immense flocks or long continuous lines off-shore; a little smaller than *creatopus*, much larger than *opisthomelas*; very like *tenuirostris*, but larger and with more extensive white on under surface of wing.

Nesting.—Does not breed in California. Single white *egg* laid at end of burrow in hillside, several feet in and often miles from water. Av. size 67.3 x 45.7 (2.65 x 1.80). *Season:* November.

General Range.—Of widest distribution; southern oceans, north in the Atlantic to the Faroe Islands and the Gulf of St. Lawrence, and in the Pacific to southern Alaska and the Kurile Islands. Breeds at least on islands of the New Zealand seas.

Occurrence in California.—Common upon ocean at all seasons, sometimes of incredible abundance as migrant and forager at varying distances from shore up to 50 miles. Period of maximum abundance May–November. Occasionally passes close inshore or visits bays and harbors: Santa Barbara, Sept. 10, 1913, etc.; Pizmo, June 25, 1914; San Francisco Bay, various occurrences.

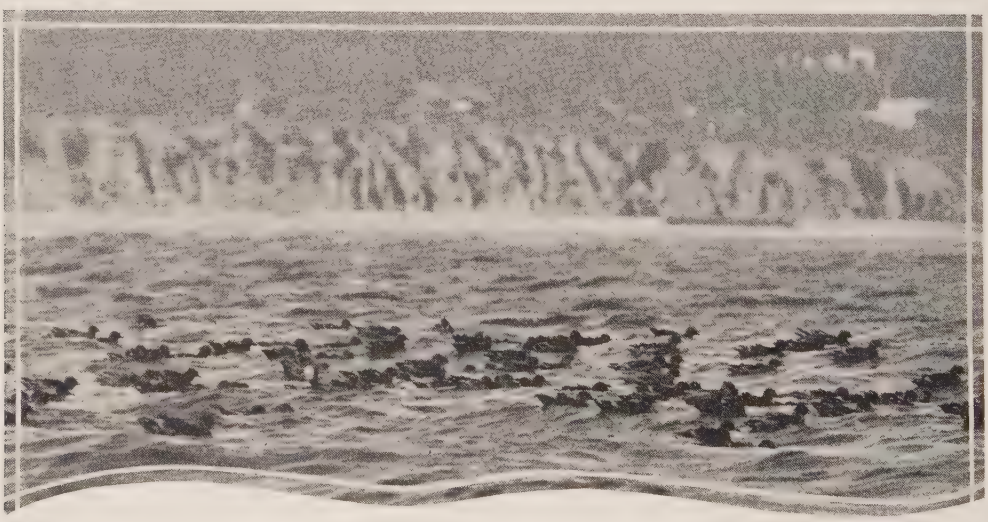
Authorities.—Cooper (*Nectris fulignosus*), Proc. Calif, Acad. Sci., vol. iv., 1870, p. 79 (San Nicholas Id.); *Loomis*, Proc. Calif. Acad. Sci., ser. 2, vi., 1896, p. 27 (occurrence at Monterey); *ibid.*, ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 132 (syst.; crit.).

DID YOU EVER see a million birds at once? Our fathers did in the days of the Passenger Pigeon, but that species is extinct now. We

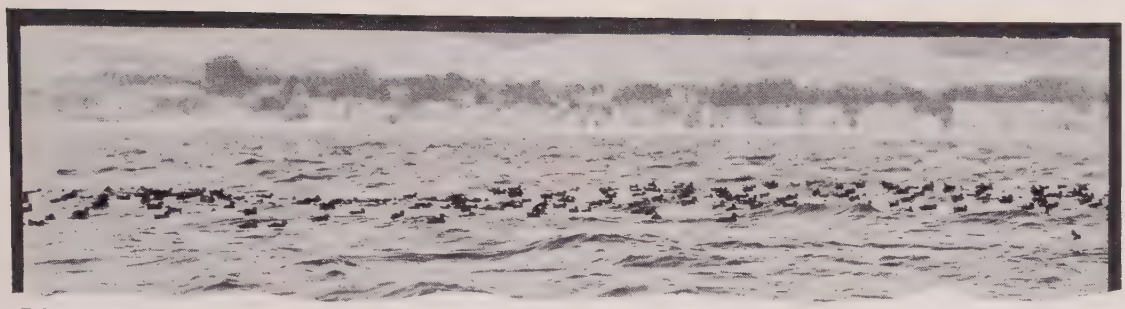
have heard similar tales of the abundance of ducks; but what with the long prevalence of insensate market slaughter, automatic guns, and the universal madness, we have to speak soberly of thousands now. Your one best chance to see a million birds is to post yourself on some sea-cliff, anywhere from May to October, and to watch for a dark line of hurrying Shearwaters outside of the kelp-beds, perhaps half a mile or so offshore. It is a mere chance, then, for Shearwaters hunt in great hordes, and the main host may be operating anywhere between Baja California and Alaska.

The hunting organization of the Shearwaters is a great revolving ring, most nearly comparable to that of a meteoric host, say the Leonids, which, though most abundant at one point of their enormous orbit, are, nevertheless, strung out with substantial uniformity over the whole of the remaining circuit. The whirling ring of birds drifts north or south with a movement as certain and imperceptible as the "secular drift" of the stars. The circle may be a comparatively small one, so that you can see the returning line, the other side of the circle, a mile or so farther out to sea; or it may be very large, as much as twenty-five miles in diameter, so that the observer on shore has the impression of a single stream of birds moving parallel to the shore, and sometimes occupying days in passage. Nevertheless, there is a point somewhere upshore where the line bends away and passes out to sea, to accomplish in due order the return movement of the gigantic succession.

The line itself varies from a thin ribbon, which one may easily count,



Taken near Santa Barbara MASSING, AND SWIMMING RAPIDLY *Photo by the Author*



Taken near Santa Barbara

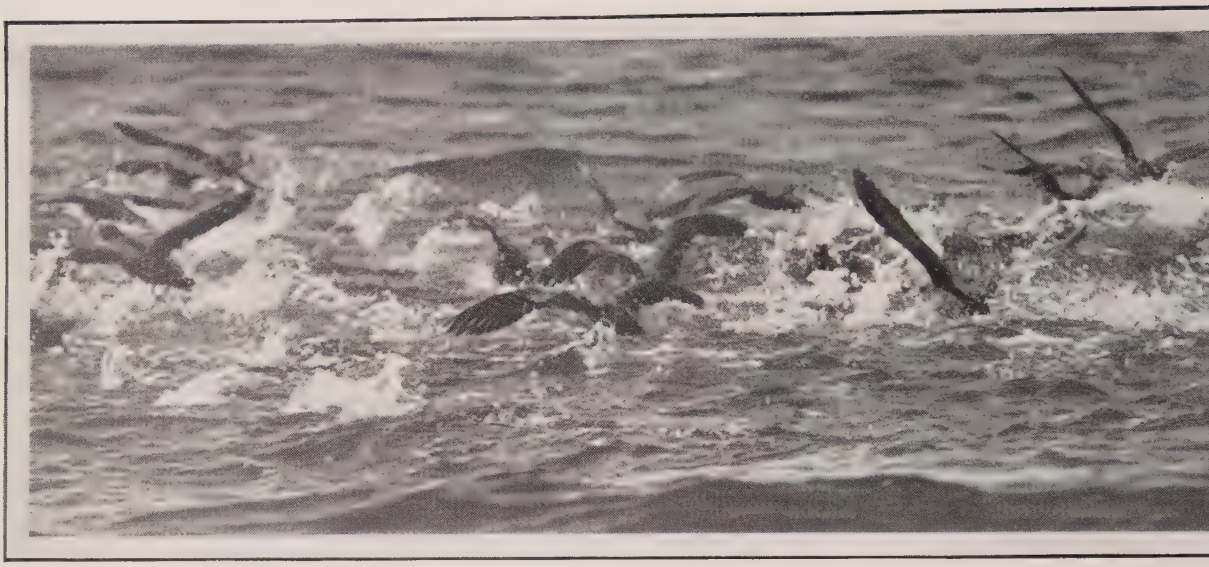
A RAFT OF DARK-BODIED SHEARWATERS

Photo by the Author

say 200 birds per minute, to a solid column which one must estimate at a hundred or two hundred birds per second. Being once favorably situated with a "marker" a half mile offshore and just inside the flight-line, I estimated that between 100,000 and 200,000 birds passed in the course of thirty-five minutes. This I judged on other grounds to be the complete horde. Assuming the lesser number, or an average of 3000 birds per minute, moving at a speed of sixty miles per hour (the questing flight is really not so very rapid), we had here a flight circle thirty-five miles in circumference. A circle twenty-five miles in diameter would assure a quarter of a million birds. There is also good reason to suppose that our "circle" is sometimes a very eccentric ellipse, with its major axis a hundred miles or more in length, extending parallel to shore. This would give us the possibility of a million birds.

But to see them all at once! That, too, is easy if you know the magic talisman. It is *herring*. The million Shearwaters are looking for a school of ten million little fish; and when this populous kindergarten is located—lucky for you if near shore—an electric thrill runs through the circle. The original discoverers have plumped into the water; those immediately ahead have wheeled about; while those behind have speeded up with an impulse which almost immediately affects the entire line. The pace is furious, and the water is instantly black with settling birds. The first comers have snatched their prey from the surface; their immediate successors have had to dive to moderate depths, probably not over three or four feet. The fish themselves have taken alarm and gone below, but they will reappear in a minute or so at some distance, only to be set upon in fury by the augmented company of beaks.

After a successful catch digestion is the immediate order of the day, and the Shearwaters settle upon the water in great shoals to accomplish this important feat. At such a time, having been notified by telephone that strange black birds were thronging the harbor at Santa Barbara, we seized our cameras and hurried down to Stearns Wharf, only to find

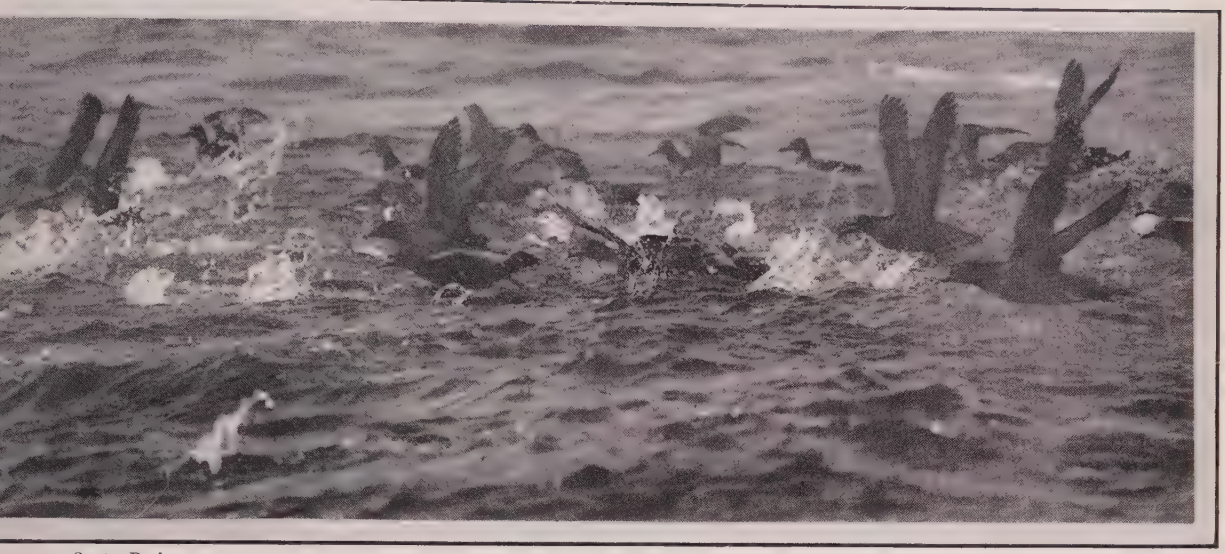


Taken near Santa Barbara

DARK-BODIED SHEARWATERS: A FURY OF EXERTION

Photo by the Au

that the anchovies had all been eaten up, and that the birds were leaving. Hastily chartering a fisherman's launch, we gave orders to head southwest, whither by now the last birds had disappeared. The sea was a bit choppy, and our course lay broadwise to the swells; hardly an ideal condition for a race with Shearwaters. Nevertheless, a mile or so out we succeeded in picking them up in the offing; and as we approached, large numbers rose from the surface of the water and sped away. It looked discouraging, but glancing down wind and sun toward Miramar, we made out several dark shoals of birds. Heading toward them we found to our delight that they would drive down wind instead of rising. We first tried drifting, but fell into the trough of the waves and could not snap to advantage. Also the birds washed along as fast as we did. Backing fared no better, because we lost control of the boat. So finally we took to driving straight at them, then sheered and circled before they were too much disturbed. We soon found that the birds had to face the wind and kick vigorously in order to rise at all. So by driving down wind, we repeatedly got right among them. In this predicament they either dived or swam desperately or floundered down wind. The minute we were past them of course they rose and made off. Twice the whole flock, numbering 2000 or 3000 birds, settled within quarter of a mile and allowed us to repeat our hectoring tactics. Many ensemble pictures were secured of the birds both sitting and rising, but the roughness of



en near Santa Barbara *Photo by the Author*

DARK-BODIED SHEARWATERS: BREAKING WATER

the water did not permit of properly timed exposures or of individual portraiture.

The nights are spent in this same fashion, tossing upon the waves in great dense companies which roughly parallel the shore. Their slumbers are not infrequently disturbed by storms; and we have ample evidence on shore that not even these children of the sea can stand an indefinite amount of buffeting. A watery grave awaits every Shearwater, and it makes little difference to a floater whether crayfish or gulls play the part of undertaker.

No. 408

Flesh-footed Shearwater

A. O. U. No. 95.1. **Puffinus carneipes** Gould.

Synonym.—PALE-FOOTED SHEARWATER.

Description.—"*Adult*, dark sooty brown, nearly uniform, slightly paler beneath and grayer on the throat; under wing-coverts and axillaries uniform sooty brown, bill flesh-colour, the tip horn; tarsi and toes flesh-colour. Total length about 19.5 inches [mm 495.3], wing 12.5 [mm 317.5]; tail, central rectrices 4.3 [mm 109.2], lateral rectrices 3.65 [mm 92.7]; tarsus 2.25 [mm 57.15], middle toe 2.7 [mm 68.6], outer toe a trifle shorter, inner toe 2.2 [mm 55.9]" (Salvin).

The Slender-billed Shearwater

Recognition Marks.—Size of the common *griseus*, but no white on wing-lining; feet palest. *Pale beak* said by Loomis to be distinctive.

Nesting.—Does not breed in California. *Nests* in colonies. Single egg pure white, laid at end of burrow in sandy soil. Av. size 68.6 x 44.45 (2.70 x 1.75). *Season:* November 20–December.

General Range.—Australian and New Zealand seas north to Japan and Calif.

Occurrence in California.—Of limited but apparently regular occurrence as migrant and forager off-shore, at all seasons but perhaps less commonly in winter. Associates closely with *P. griseus*.

Authorities.—**Beck** (*Puffinus carneipes*), Proc. Calif. Acad. Sci., ser. 4, vol. iii., 1910, p. 66 (Monterey); *Grinnell*, Pac. Coast Avifauna, no. 11, 1915, p. 27 (Monterey); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 129 (syst.; Calif. occurrences, etc.).

IN THE "good old days" any fat squab haled from its subterranean cradle by a hungry fisherman was dubbed a puffin, in honor of its heavy coat of down and consequent puffy appearance. All babies look alike (at least so bachelors say), and we cannot blame the unlettered Manxman for confusing two sooty balls of down which he found in adjoining burrows. But the scientist who suffered one bird (*Fratercula arctica*) to be called Puffin; and then gravely latinized the fisherman's nickname as *Puffinus puffinus*, to serve as the "imperishable designation" of the Manx Shearwater, wrought imperishable confusion thereby.

But the poor "scientist" is often hard put to it, especially when he doesn't know anything about the bird in life. Take this Shearwater, for instance, *Puffinus carneipes*,—I don't know anything about it. Call it "Pink-footed," as Salvin does; or "Flesh-footed," as Beck does; or "Pale-footed," as the A. O. U. Committee recommends. Or, if the gentle bird will permit the gentle reader to hold its hand (foot), he may have a try at it himself.

Rollo H. Beck dragged this bird from its comfortable obscurity (where it had doubtless reposed, seasonably, for a millennium) off Point Pinos, on the 23rd of November, 1903. He dragged it out ten times (at least—see specimens in the California Academy of Sciences and in the Museum of Vertebrate Zoology), and pretty well established thereby that out of every thousand Shearwaters shot off Monterey, one or two will be "Pale-footed,"—or "Flesh-footed," as you prefer.

No. 409

Slender-billed Shearwater

A. O. U. No. 96. **Puffinus tenuirostris** (Temminck).

Synonyms.—Short-tailed Shearwater. "Mutton-bird" (par excellence).

Description.—*Adults:* General plumage sooty black, varied slightly by brown-

ish tips of feathers, lightening (sooty gray) below; chin lighter to whitish, and a touch of white on lower eyelid; lining of wing, restrictedly, whitish to white. Bill slender, weak, black; feet and legs light gray and dusky. Length (av. of 6 Monterey specimens): 393 (15.47); wing 273 (10.75); bill 32 (1.26); depth at base 10.4 (.41); tarsus 49.5 (1.95).

Recognition Marks.—Teal size, but appearing larger; uniform sooty coloration; roughly, a smaller edition of the dark-bodied Shearwater—bill much smaller and white lining of wing more restricted.

Nesting.—Does not breed in California. Single white *egg* deposited in burrow or (in crowded colonies) upon surface of the ground. Size variable but average about 71.1 x 47 (2.80 x 1.85). *Season:* c. Nov. 25; one brood.

General Range.—Breeds in southern seas; migrates along both coasts of North Pacific as far as Kotzebue Sound, Alaska.

Occurrence in California.—Fairly common migrant and forager on the open ocean, from San Diego north at least to Monterey. All records appear to come within the seven "winter" months, October–April.

Authorities.—Loomis (*Puffinus tenuirostris*), Proc. Calif. Acad. Sci., ser. 2, vol. vi., 1896, p. 28 (Monterey); *ibid.*, ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 138 (syst.; Calif. occurrences, etc.); *Anthony*, Auk, vol. xiii., 1896, p. 171 (near San Diego).

IF A SHEARWATER'S memory was retentive, it could doubtless take first prize in a geographical quiz upon the Pacific Ocean. Experienced the race unquestionably is, and none more so than *tenuirostris*, he of the slender beak, who ranges through all the intricacies of North Pacific coastal waters clear up to Kotzebue Sound. As nearly as we can determine, the spring journey northward is accomplished along the Asiatic borders of the ocean. The returning hosts of fall sweep down our American coasts, but usually take their departure for the trans-Pacific flight from some point farther north than California. Now and again, however, the southward movement persists along our shores. Mr. Joseph Mailliard encountered the species in considerable numbers at Monterey on the 17th, 18th, and 19th of December, 1895, and was the first to report them as Californian birds. Their occurrence at that season was further remarkable because December is the height of their breeding season in Australian waters. Mr. Beck records a notable flight on December 2nd, 1907, on Monterey Bay, where he also took specimens from October 14th to January 30th, the last-mentioned being undoubtedly a non-breeding straggler. Anthony took specimens off San Diego on January 9th, 1896, evidently stragglers from the unusual movement which Mailliard had witnessed at Monterey some twenty days previous.

The early accounts of the nesting of these "Mutton-birds," on certain islands off the coast of Tasmania, border upon the marvelous. Davies, writing in the "Tasmanian Journal," says:[1] "It is not in my power to describe the scene which presents itself at Green Island on the night of the 24th of November. A few minutes before sunset flocks are

[1] Quoted by Salvin and Godman in Monograph of the Tubinares, Pt. II., p. 151.

seen making for the island from every quarter, and that with a rapidity hardly conceivable; when they congregate together, so dense is the cloud, that night is ushered in full ten minutes before the usual time. The birds continue flitting about the island for nearly an hour and then settle upon it. The whole island is burrowed; and when I state that there are not sufficient burrows for one-fourth of the birds to lay in, the scene of noise and confusion which ensues may be imagined—I will not attempt to describe it. On the morning of the 25th the male birds take their departure, returning again in the evening, and so they continue to do until the end of the season. Every burrow on the island contains, according to its size, from one to three or four birds, and as many eggs; one is the general rule. At least three-fourths of the birds lay under bushes, and the eggs are so numerous that great care must be taken to avoid trampling upon them. The natives from Flinders generally live for some days on Green Island at this time of the year for the purpose of collecting the eggs, and again in March or April for curing the young birds. The eggs and cured birds form a great portion of the food of sealers, and, together with their feathers, constitute the principal articles of their traffic."

Inasmuch as the standard-sized feather-bed required the sacrifice of some 1600 birds, it may readily be seen how these once numerous birds, raising at best but a single young each year, became sadly depleted in numbers. Fortunately, governmental regulation has since been instituted, and this enlightened policy bids fair to maintain Slender-billed Shearwaters and allied species at something like the present status.

No. 410

New Zealand Shearwater

A. O. U. No. 96.2. **Puffinus bulleri** Salvin.

Description.—"*Adult:* Upper surface dark grey, crown and back of the neck sooty-black, the lores and region below the eye mottled with greyish white; lesser wing-coverts sooty-black; larger coverts grey and bordered with white; primaries outwardly black, two-thirds of the inner web white; under surface and under wing-coverts white; under tail-coverts white, with a grey edge; tail blackish, outer rectrices tinged with grey; bill dark horn-colour, the mandible beneath fleshy; tarsi and toes yellowish, outwardly dusky. Total length about 16.5 inches [mm 419.1]; wing 11.3 [mm 287]; tail, central rectrices 5.2 [mm 132.1], lateral rectrices 3.5 [mm 88.9]; bill 2.6 [mm 66]; tarsus 2 [mm 50.8], middle toe 2.35 [mm 59.7], outer toe 2.3 [mm 58.4], inner toe 2 [mm 50.8]" (Salvin).

Recognition Marks.—A black-and-white wedge-tailed type, *paler* above, gray instead of sooty. White on inner webs of primaries distinctive.

General Range.—Southern seas, north to Monterey. Breeding haunts unknown.

Occurrence in California.—Rare, but apparently of fairly regular occurrence as migrant and forager off the coast of Monterey. All records fall within the autumn months.

Authorities.—Loomis, Proc. Calif. Acad. Sci., ser. 3, Zool., ii., 1900, p. 319 (Monterey); *ibid.*, ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 146 (syst.; Calif. occurrences, etc.).

ALTHOUGH Shearwaters range over the entire ocean, their favorite beats lie along the offshore banks, where herring, squids, and surface crustaceans abound. They usually move close to the water with a stiff double or treble flap and sail, a motion which is admirably suited to the sinuosities of the sea; and while one may think them a little awkward and slow-gaited, it is astonishing how quickly they pass from sight. It takes a nice eye and a practiced judgment to pick out the occasional rarity from among the thronging thousands of Shearwaters which annually sweep down, or up, our coasts. Sometimes discrimination is impossible; and we owe our first knowledge of some species either to accident or shrewd "suspicion." Mr. L. M. Loomis had the (deserved) good fortune of establishing the first record of *P. bulleri* for the Northern Hemisphere—a female taken on Monterey Bay, November 6th, 1896. Mr. Beck has taken numbers of specimens since in the same historic locality; and its occurrence might be described, therefore, as expectable.

Added zest is given to this search for strange visitors when we realize that more specimens of this bird have been taken at Monterey than in all other places together, including the type locality, New Zealand. This trim little Shearwater probably breeds somewhere in the Southern Hemisphere, but its nesting haunts are unknown.

No. 411

Black-tailed Shearwater

A. O. U. No. 97. **Priofinus cinereus** (Gmelin).

Description.—*Adult:* "Upper surface cinereous, rather darker than the crown, wings, tail and rump; the feathers of the back with dark shafts, under surface white; the sides of the head and neck pale grey, blending into the white of the under plumage and the darker grey of the upper; a few feathers on the flanks and the under tail-coverts grey; under wing-coverts and quills grey; bill yellow, the nares and culmen black; tarsi and toes fleshy brown, the outer toe darker. Total length about 19 inches [mm 482.6], wing 13 [mm 330.2]; tail, central rectrices 4.4 [mm 111.76], lateral rectrices 3.5 [mm 88.9]; bill 2.4 [mm 61], tarsus 2.3 [mm 58.4], middle toe and outer toes 2.75 [mm 63.5], inner toe 2.35 [mm 59.7]" (Salvin).

Nesting.—Does not breed in California. *Nests* in colonies, depositing single egg at end of burrow under tussock of grass, high up on mountain side (Macquarie Island). *Egg:* White. Av. size 69.85 x 50.8 (2.75 x 2.00).

General Range.—Southern oceans.

Occurrence in California.—One record, off coast of Monterey, some seventy years ago. Specimen now in Am. Mus. Nat. Hist., New York.

Authorities.—Lawrence (*Procellaria haesitata*), Ann. Lyc. Nat. Hist., New York, vi., 1853, p. 5 (specimen obtained off Monterey); *Baird, Brewer, and Ridgway,* Water Birds N. Amer., vol. ii., 1884, p. 375; *Beck,* Proc. Calif. Acad. Sci., ser. 4, iii., 1910, p. 66; *Loomis,* Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 108 (Calif. occurrence).

THERE ARE doubtless more fish in the sea than have ever been caught; but your scientist cares nothing for their quantity. It's quality he's after, and he'd give his galluses for a new species, or even, sometimes, for a new record.

Lawrence's record of a specimen of *Priofinus cinereus*, taken off Monterey, stands unquestioned and unduplicated. The bird is an inhabitant of southern oceans; and although it has been seen to the number of hundreds of thousands at once off Tierra del Fuego, its range is still imperfectly made out and its eggs are unknown.

No. 412

Fork-tailed Petrel

A. O. U. No. 105. **Oceanodroma furcata** (Gmelin).

Synonym.—Gray Fork-tailed Petrel.

Description.—*Adult:* Bluish ash, lightening below and on greater wing-coverts, palest, to whitish, on throat and under tail-coverts; greater wing-coverts and tertials tipped with white; secondaries broadly edged with white; lesser wing-coverts, edge of wing, and exposed primaries dusky; inner webs of primaries lighter ash to whitish, and outer web of outer tail-feather definitely white; a dusky patch about eye. Bill and feet black. Length 203.2-228.6 (8.00-9.00); wing 152.4-165.1 (6.00-6.50); tail 101.6 (4.00); forked about 25.4 (1.00); bill 15.2 (.60); tarsus 21.6 (.85).

Recognition Marks.—Towhee size, but appearing more like Nighthawk; ashy blue coloration distinctive.

Nesting.—*Egg:* Subelliptical; pure white or with ring of reddish brown dots about larger end; placed at end of small burrow in earth-bank. Av. of 5 California-taken specimens: 31.75 x 24.4 (1.25 x .96). *Season:* June.

General Range.—North Pacific Ocean and adjacent portion of Arctic Ocean. Breeds from Commander and Aleutian Islands south to islands off northwestern coast of California. Wanders (?) north to Kotzebue Sound, Alaska, and south to southern California.

Distribution in California.—Breeds on islands off coast of Del Norte and Humboldt counties, south to Trinidad. Irregularly (?) south at other seasons to San Pedro and Sunset Beach, Orange County (Wyman).

Authorities.—Cooper, Proc. Calif. Acad. Sci., vol. iv., 1868, p. 10 (San Pedro); *Godman*, Monogr. Petrels, pt. i., 1907, p. 38, pl. 11; *Clay*, Condor, vol. xviii., 1916, p. 205 (coast of Del Norte and Humboldt counties, breeding); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 177 (syst.).

TO MR. C. IRVIN CLAY, of Eureka, belongs the honor of first discovery of the Fork-tailed Petrel as a breeding bird of California. In one of those privileged hours which are sometimes allotted to good birdmen, Clay had ransacked Whaler Island, in the harbor of Crescent City, and discovered Fork-tails breeding in some numbers. He secured eight eggs, of which five are now in the Museum of Comparative Oölogy, and skins of two parents. The date, May 14, 1916, was decidedly early in comparison with the nesting dates of *O. l. beali*.

Taken in Humboldt County *Photo by the Author*

FARTHEST SOUTH

MR. CLAY SEARCHING FOR FORK-TAILED PETRELS AT THE SOUTHERNMOST KNOWN BREEDING STATION OF THE SPECIES

About a month later the author, in company with Mr. Clay, visited a rock near Trinidad, variously known upon the maps as Off-Trinidad, or Blank Rock. Here in a tiny colony of nesting Beal Petrels, Clay unearthed a small gray "pincushion" which excited my suspicion. The water was a little rough and landing difficult, but I demanded a turn ashore, while my companion, poor chap, alternately "fed the fishes" over the side of the drifting boat and waved a courageous "All's well!" The note-book, sharing its owner's enthusiasm, tells the brief story of what followed:

"Off Trinidad Rock, June 18, 1916. Gulls and Puffins (Tufted) galore, but cover scanty and the population as a whole depauperate. But here—what's this? A petrel jammed into a rock-crevice with her tail sticking out into a covered fern-way. Underneath her shins an egg. We will get that first. Ummm! Pretty big—and pretty hard set. Birdie, I guess we'll have to have you too. There, there, now, don't be naughty! You can't dig a hole in the rock where there isn't any, and I've got you by the leg. Out you come! What! Gee Whillikins! It's a Fork-tailed Petrel, the first I ever saw, and the southernmost breeding record for the species!"

The reader will better understand the author's enthusiasm when he explains that three years spent on the Washington coast had failed to discover any nesting site of this elusive species. We understand, however, that others have had better luck; and Finley and Bohlman found the species abundant off the coast of Oregon.

Blank Rock yielded us another adult and two more chicks, which we left. The station is about fifty miles south of the original discovery, Whaler Island, and Mr. Clay still holds the record for "farthest south," for the "pincushion" lay at least two rods south of my (addled) egg.

This modest gray bird, which is rather the handsomest of the petrels, is also the hardiest, since it breeds on the Aleutian and the Commander Islands, and wanders into the Arctic Ocean.

Beck found the birds at Monterey in June, 1895; and in the month of November, both in 1903 and in 1909, so that it is probable that the species passes the winter somewhere off our coasts. There is a San Pedro record authenticated by Dr. Cooper.

No. 413

Leach's Petrel

No. 413a Beal's Petrel

A. O. U. No. 105.2, part. **Oceanodroma leucorhoa beali** Emerson.

Synonyms.—Western Leach Petrel. Pacific White-rumped Petrel. "Kaeding Petrel" (extensively miscalled in earlier literature).

Description.—*Adult:* General plumage sooty brown, clearest on belly, darkening on head, back, and breast, blackening on lesser wing-coverts, flight-feathers, and tail, lightening to grayish brown on middle and greater coverts, especially upon the edges of the latter; the longer upper tail-coverts chiefly white, with sooty shaft-lines, the longest ones also narrowly tipped with blackish, the lateral lower coverts more or less extensively white in continuation of that of the upper coverts. Bill and feet black. *Downy young:* Entirely sooty black. Length 203.2 (8.00); wing 144.8 (5.70); tail 76.2-88.9 (3.00-3.50); forked 15.2-20.3 (.60-.80); bill (chord of culmen) 15.2 (.60); tarsus 22.4 (.88).

Recognition Marks.—Towhee size but appearing larger by reason of long wings; dark brown plumage with *white* rump; fluttering erratic flight.

Nesting.—*Nest:* A few grasses or none, at end of burrow 2 to 3 feet in length, in soil of sea-girt rock. *Egg:* Single, nearly equal-ended; white, nearly immaculate, or with ring of reddish brown dots about larger end. Av. of 30 specimens in the M. C. O. coll.: 30.2 x 22.4 (1.19 x .883); index 74.2. *Season:* June–July.

Range of *Oceanodroma leucorhoa.*—North Pacific and North Atlantic oceans. Breeds from southern Greenland south to Ireland and Maine, and from the Copper and Aleutian islands south to the Kuriles and Lower California.

Range of *O. l. beali.*—Breeds from Sitka, Alaska (with relations to the northward undetermined), south to the Farallon Islands, California.

Distribution in California.—Breeds abundantly upon the islands off the coast of Del Norte, Humboldt, and Mendocino counties, and, less commonly, upon the Southeast Farallon, with records from adjoining areas and possibly down the coast.

Authorities.—Cooper (*Oceanites oceanica*), Proc. Calif. Acad. Sci., vol. iv., 1868, p. 11 (San Nicholas Id.); *Oberholser,* Proc. U. S. Nat. Mus., vol. 54, 1917, p. 168 (syst.; meas.; distr.; etc.); *Grinnell,* Condor, vol. xx., 1918, p. 46 (status in Calif.); *Loomis,* Proc. Calif. Acad. Sci., ser. 4, vol. ii., p. 2, no. 12, 1918, p. 160, part (syst.); *Howell,* Condor, vol. xxii., 1920, p. 41 (coast of Del Norte County; breeding habits); *Bent,* U. S. Nat. Mus., Bull. no. 121, 1922, p. 147 (life hist.).

No. 413b Kaeding's Petrel

A. O. U. No. 105.2, part. **Oceanodroma leucorhoa kædingi** Anthony.

Synonyms.—Kaeding's Leach Petrel. Kaeding's White-rumped Petrel.

Description.—Similar to *O. l. beali,* but smaller, and with tail somewhat less deeply forked. "Wing 145 mm; central rectrices 73; lateral rectrices 83; tarsus 21; middle toe and claw 20; culmen 15." (Orig. desc.)

Range of *O. l. kædingi.*—This supposedly smaller race is known chiefly from a series of birds taken at sea near Guadalupe Island, Lower California, July 25, 1897, by A. W. Anthony. A specimen taken March 22, 1904, by L. H. Miller on the Fish Commission boat, Albatross, while off San Clemente, entitles this form to recognition

upon our list. Mr. Anthony informs me that the birds have recently (1922) been found breeding on certain islands off the western coast of Lower California.

Authorities.—Miller (*Oceanodroma leucorhoa kædingi*), Condor, vol. xx., 1918, p. 211 (specimen taken off coast of s. Calif.); *Oberholser*, Proc. U. S. Nat. Mus., vol. 54, 1917, p. 171 (syst.; meas.; distr.; etc.); *Grinnell*, Condor, vol. xx., 1918, p. 46 (syst.); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 160, part (syst.).

The problems arising from a consideration of the distribution and interrelationship of the Petrels of the genus *Oceanodroma*, are without exception the most fascinating as well as the most elusive and difficult of any presented by our science. In particular, the central question of the forces controlling the differentiation of species reaches in this group a commanding climax. Within its narrow limits most subtle differences, which theoretically *must* exist, nevertheless defy detection, while other differences are fairly startling in their abruptness. Thus, the dominant type, *O. leucorhoa leucorhoa* (from which our *O. leucorhoa beali* claims only most dubious distinction), dominates the islands along both shores of both the great oceans of the Northern Hemisphere. It exists in countless multitudes on a thousand islands stretching through at least twenty degrees of latitude and along ten thousand miles of coastline; and yet the differences alleged between extremes from the Commander Islands, off the coast of Asia, or the Flanneries, off the coast of England, or the Olympiades, off the coast of Washington, are so slight that the memory can scarcely retain them. And suddenly, on a small group of islands off the coast of California, the Farallons, appears another species absolutely distinct. From the Farallons to San Benito, through a range of only ten degrees, four such indubitable species appear (including *Halocyptena microsoma*, whose generic difference is based on a slight character), and three forms of one of them, viz., *O. l. socorroensis*, *O. l. kaedingi*, and *O. l. macrodactyla*, besides *O. leucorhoa* (*beali*), which breeds on the Farallons and migrates way beyond San Benito. There you have it! one species continuous over a highly diversified coastal range of ten thousand miles in two oceans, and (accepting San Miguel as a breeding station of *O. homochroa*) four species or six races in a fairly uniform range of 500 miles along the coast of the Californias.

The situation is, indeed, so extraordinary that we find ourselves obliged to attempt some sort of reconstruction of recent Oceanodromine history. The species *Oceanodroma* probably had its distributional, or evolutional, center here on the islands of the southern Californias. High differentiation within a limited but interrupted (i. e., island) area is sufficient evidence of ancient occupation. One species, the ancestral *O. leucorhoa*, evolving perhaps on Guadalupe, finding its ancient home overcrowded, set about searching for unoccupied territory. Passing over the ancient Farallons, already occupied by *homochroa*, it found such territory in the newer islets of the North Pacific Coast, successively released from glacial conditions. Here it flourished like the green bay tree, taking on gradually the slightly different characters of larger size, paler coloration, and deeper furcation of the tail,—*O. leucorhoa beali*. From this rich field, members of this group, wafted by some accident of wind or weather, reached the North Atlantic Ocean, where, finding similar unoccupied territory, they spread rapidly without sensible change of form,—*O. leucorhoa leucorhoa*.

Of course this outline is purely hypothetical, but it is not by any means fanciful; for every student of evolutionary changes is agreed that uniformity in a given species, over an extensive, highly diversified, interrupted area, argues both recency of occupation and strength of stock. Moreover, the now thoroughly recognized and regular north and south migrations of *beali-leucorhoa* in both oceans, argues a southern and relatively recent origin of the species. *Beali-leucorhoa* is the dominant type of the

genus *Oceanodroma*, and its representatives probably outnumber all other *Oceanodromæ* ten to one. In a few millenniums we shall expect to see it break up into as many "species" as there are island groups, or major breeding places, in its now vast domain.

FINE PRINT is for the ornithologically elect only, and the author hastens, with due apology to the neophyte, to speak of Petrels, instead of *Oceanodromæ*. But Beal's Petrel, although so recently brought to recognition, proves to be rather the key to the whole genus, and a word about its history and distribution will not be amiss. When Mr. Anthony took specimens of a new petrel off Guadalupe Island in late July, 1897, he supposed that he was encountering a new species, and, naming it *Oceanodroma kaedingi*, he assigned its habitat as "from Socorro and Clarion Islands to Southern California."[1] Mr. Loomis had found a white-rumped petrel on the Farallons in the summer of 1896, but he called it *leucorhoa*. Moreover, it was very scarce there and was not again seen until Mr. John Rowley and I found it on May 30th, 1911. Finley and Bohlman reported the bird as Kaeding's Petrel from the Three Arch Rocks, off the coast of Oregon, in 1905; and I found several large colonies of a similar petrel off the coast of Washington the following summer. We know, now, that these white-rumped petrels breed extensively on the islands off our own northern coast, and from there northward to the islands of Bering Sea. This prevailing type has, however, been named Beal's Petrel; and the name Kaeding Petrel, formerly in use, has been restricted to a small group of birds breeding off the coast of Lower California.

Of *beali* as a California breeder we can only say that five specimens were taken in 1911 from the crevices of a wall which marked an old Russian sealing station on the Southeast Farallon. The species was found closely associated with the Coues Petrel, *O. homochroa*, and two eggs were taken on the 3rd of June. It did not occur elsewhere on the island, whereas Coues Petrels abounded to the number of thousands.

Because, therefore, this important species has its center of abundance farther north, I may be pardoned for giving an extended account of its breeding off the Washington coast.

The most populous colony has been found upon Dhuoyuatzachtahl, an islet of the group known as the Quillayute Needles. The name is a Quillayutan compound meaning Rock-where-we-catch-Petrels, and has been from time immemorial a breeding place of these tiny Tube-noses.

On July 20th, 1906, three of us, in company with two expert Indian surfmen, set off in a canoe from La Push to visit this rock a mile offshore. The sea was fairly quiet and the sky perfect, but the swells crashed and roared about the base of the rocks, and landing with cameras was a difficult operation. Once ashore, we were obliged to scuttle between waves to

[1] The Auk, Vol. XV., 1898, p. 37, Orig. desc.

the nearest point where it was at all possible to scale the rock.

The islet is about a hundred feet high, precipitous upon three sides, but sloping and climbable upon the south. The top has an area of something over an acre, and is unique for the abundance and uniformity of a rank grass which occupies the greater portion centrally. The grass has a stoutly-projecting midrib so that it stands up at a height of two and a half feet, its roots being imbedded in a covering of its own waste to a depth of six or eight inches more. Circling all about this central bed is a border of close-set wiry turf, while a narrow stretch of the dwarf salmon-berry bushes, peculiar to this coast, occupies the northern crest of the slope.

Immediately upon arrival our attention was called to tiny openings in the grass, the orifices of subterranean burrows. Sometimes the entrance was clear-cut and open, with a little runway beneath paved (more by accident and use, perhaps, than by design) with little pebbles; but quite as often, the mouth of the burrow was hidden by a tangle of interlacing grass-stems. The tunnels are about two and a half inches wide at the mouth, and run in from two to three feet. They seldom run straight, but twist about at random, widening as they proceed, until a considerable nesting chamber is reached.

Taken in Washington *Photo by the Author*

CALIFORNIA MAMOOK ISKUM DHUOYUATZ

IN OTHER WORDS,, THE INDIAN ("CALIFORNIA" HOBUCKET), IS DIGGING OUT BEAL PETRELS

Here, according to the season, may be found two adult birds, a bird and an egg, or a bird and young. In the first case it is the male bird keeping company with his mate for several weeks before the single egg is laid. During this honeymoon it is possible that the birds dine out together; but when the egg is laid, the male spends the day at sea, visiting his brooding mate only at late nightfall. Likewise, after the chick is hatched, it is the male who provides the food for mother and babe until such time as the rising appetite of the junior troglodyte requires the services of both parents.

When removed from the nest, the parent bird appears dazed and blinded, and seldom seeks to escape by flight. Taken into the hand, it

jams its head into the recesses of the fingers, thinking only of cover. Placed upon the ground, it pokes about the grass in a fidgety, near-sighted way, looking for a hole, and does not scruple to enter the hole of a neighbor rather than remain under surveillance. Once one flew from the hand and made off to sea with a bewildered, hesitant motion, a jerkiness somewhat similar to that of a nighthawk at close quarters. Others I threw into the air, and they too made off to sea sheepishly, like waifs caught sleeping on a park bench and told to move on.

In no instance did the mother betray any interest in her young, or realize that it, too, was in the same plight. Now and then birds bit us, but their bills were not strong enough to inflict injury. When molested, Petrels eject an ill-smelling oil, which either proceeds from or involves the nostrils in its discharge. This in turn is followed speedily by the contents of the crop, if such are available; but whether this offering is intended for a ransom or is only the result of fright, one cannot certainly tell.

We had been working in the turf plot looking only for fresh eggs and taking pains to replace the chicks—tiny balls of slate-colored down with feet of a deathly pallor and bills jet black; stupid, also, as balls of mud—wherever found. But after having waded through the heavily grassed

Taken in Washington *Photo by the Author*

NEST AND EGG OF BEAL PETREL

O. l. beali *O. l. socorroensis* *O. l. kaedingi* *O. melania* *O. furcata* *O. homochroa*

THE *OCEANODROMÆ* OF CALIFORNIA

HAUNT OF BEAL PETREL

THE STATION IS THE ONE SHOWN ON PAGE 2011. MR. CLAY HAS JUST RELEASED A BEAL PETREL, WHICH MAY BE DISCERNED AT THE LEFT. (LOOK FOR A FLY SPECK.)

portion of the island once or twice, the thought occurred to us that there might be Petrels there. Judge of our surprise, however, when we found the vegetable mold a perfect labyrinth of Petrel burrows! So light was the accumulation in point of density (once the growing blades were penetrated) and so abundant the birds that one had only to dig with the hands, dog-fashion, and birds, eggs, and young were the invariable result. The whole half-acre of grass proper was a *seething mass of Petrels*. Yet from all that host not a sound to betray their presence! The sun shone calmly and the breeze blew benignly. Nothing disturbed the serenity of the day save the restless quaverings of the always hostile gulls. There was nothing, in short, to indicate that beneath our feet lay a buried city, not once populous and now deserted, but *now* teeming with life, a city of storm-waifs, gathered from an expanse of a thousand watery leagues, a city perhaps more populous than any other colony of the class Aves within a hundred

leagues, lying silent where the eye saw only waving grass. The promise of the situation so wrought upon us that we determined to return at evening some time later, and did so on Monday evening following, July 23rd.

We arrived a little after nine o'clock, provided with matches, bedding, and water, and prepared to spend the night. We found the island still silent, but we used the remaining moments of twilight to further determine the limits of the colony; and found that the dense salmon-berry thicket was likewise occupied by Petrel burrows.

At about ten o'clock the first note was sounded—from the ground. In quality like that of a tiny cockerel, in accent like that of a glib paroquet, came the cry, *Pĕttĕrĕttĕrĕttĕrĕll, ĕttĕrĕttĕrĕttĕrĕll.* The second phrase is slightly fainter than the first, and is, therefore, just suggestively an echo of it. After ten minutes, or such a matter, one sounded in the air. By and by came another and another. And so the matter grew until by eleven p. m. the air was a-flutter with sable wings, and the island a-hum with *t*'s and *r*'s and *l*'s. This hour was typical of the entire night, although the pace was perhaps a little more furious at one o'clock, when we roused for another observation. We had spread our blankets in the center of the grass field, regretful of the fact that the portion of the population *under* us must needs go supperless for that night. Perhaps, therefore, it was our presence which stirred the birds to unusual demonstrativeness, but I am not at all certain that this was the case, or that our presence affected the situation in the slightest degree.

The air was full at all times of circling birds, at least several hundred of them, probably several thousand. They flew about excitedly, much more nimbly than in the daytime, but still erratically, incessantly clashing wings with their fellows and now and then colliding with such force that they fell down into the grass. Those which flew about uttered from time to time the characteristic cry, but those a-wing were but a small portion of the total number in evidence. The grass swarmed with birds working their way down through to the burrows, or else struggling out, all giving from time to time the rolling cackle which is the accompaniment of activity; while from the ground itself came an attendant chorus of cries. Taken altogether, there were thousands, perhaps tens of thousands of birds in motion, and the total effect of the rustling and the cackling (or crowing) was a dainty uproar of notable proportions, a never-to-be-forgotten babel of strange sounds. And in this fairy tumult not the least element was the peeping and whining of the chicks, both tended and untended.

The characteristic cry is that given above, but it was frequently abbreviated to *Pĕttĕrĕttĕrĕll, ĕttĕrĕttĕrĕll.* This was the only adult sound heard save a rolling cry rendered staccato in *r*'s and *l*'s, which came appar-

ently from birds standing at the mouth of the burrows. The note with its short *e*'s is instantly suggestive of the name, and if the notes of other Petrels resemble this one, I should unhesitatingly say that the name is imitative, and that the classic explanation of "Little Peter walking upon the waves" is, like so many other philological traditions, more ingenious than probable.

Concerning the number of birds in this colony it was difficult to form a judgment. We explored fifty nests, representing a hundred birds, in the least populous portion of the colony; yet the area affected was no sensible portion of the whole, certainly not a hundredth, probably not a five-hundredth part. Based upon this estimate alone, the number of resident birds would run from ten to fifty thousand, and it might easily be much greater. I think the birds in the air simply represented the newcomers, who took a few turns about the island as they came in from the ocean, preparatory to settling down to the business of feeding their mates. Certainly the majority of the birds were at all times below the ground; while the number in transition may be judged by the fact that at one o'clock, when I left the bed and groped about in the darkness on hands and knees, I picked up birds both from the ground and the grass.

At four o'clock the volume of sound had subsided, and not above a dozen flitting forms were seen; while at six o'clock there was no slightest sign to betray the presence of the sleeping multitude.

In the summer of 1910 another extensive colony of these Petrels was discovered near La Push, *by the sense of smell*, a favoring breeze having brought a characteristic whiff ashore from Kwahllalahtahl, half a mile away. This pungent, penetrating odor of the petrel, due no doubt to the peculiar oil distilled from its food, is very grateful to the nostrils of the veteran. The island thus discovered and promptly explored was suffering from the ravages of a Peale's Falcon (*Falco peregrinus pealei*), which had a nest midway of a neighboring rock. The ground about the petrel burrows was strewn with wings, and we judged that the royal marauder had to get out very early in the morning to accomplish such destruction.

On another islet, Carroll, we found a few petrels nesting in the shade of the spruce-crowned summit, along with the more abundant Cassin Auklets. The burrows here were shorter, and the egg was placed on a luxurious cushion of spruce-twigs and moss—altogether different from the scanty lining of grass, or the bare ground, which is customary in petrel burrows. Perhaps there is an incipient subspecies here, *O. leucorhoa nidificans*.

No. 413c Socorro Petrel

A. O. U. No. 108.1. **Oceanodroma leucorhoa socorroensis** Townsend.

Description.—*Adult:* General plumage sooty black, blacker and softly lustrous

on exposed wing-quills and tail; browner, deep chocolate brown, on belly; paler, more ashy brown on face; an area formed by middle and greater wing-coverts and portion of tertials much lighter, drab, the tips of greater coverts still paler, nearly whitish; *the lateral upper tail-coverts*, and sometimes the entire rump, *more or less extensively white* (this character very variable). Bill and feet jet black. Length 203 (8.00) or under; av. of 3 spec. from Los Coronados Ids. (skins); 192 (7.56); wing 155 (6.10); tail 78 (3.07); depth at fork 21.2 (.83); bill 15.5 (.61), depth at base 6.2 (.24); tarsus 22.4 (.88).

Recognition Marks.—A middle-sized petrel, larger and darker than *homochroa*, smaller and a little lighter than *melania*, from both of which it is usually distinguishable by the presence of white on the sides of rump. This is really a localized representative of the *leucorhoa* group, embracing the Pacific species, *beali*, *kædingi*, *socorroensis*, *macrodactyla* (enumerating from north to south), *monorhis* of China, and *castro* of the southern oceans; it is distinguishable from *beali* of the north coast by its paler wing-coverts and the lateral white patches not meeting, or at least less extensively meeting, across rump.

Nesting.—Much as in *O. l. beali*. Av. size of 15 eggs in M. C. O. coll.: 29.85 x 22.35 (1.175 x .88); index 74.9. *Season:* Late June or early July.

Range of *O. l. socorroensis*.—Breeds on Los Coronados Islands, just south of the Mexican boundary line, and San Benito Island, further down the Lower California coast. According to A. W. Anthony, it is fairly common in summer on the ocean off San Diego.

Authorities.—Anthony (*Oceanodroma socorroensis*), Auk, vol. xii., 1895, p. 387 (ocean, off San Diego); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 35 (s. Calif. ids.; habits. syst.; crit.); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 160, part (syst.; crit.).

A GREAT FORBEARANCE, whether wise or no we shall not undertake to say, has for decades kept the Yankee out of Lower California. Its teeming lagoons and alluring wildernesses have now and then resounded to the crackle of revolutionary rifle-fire, but the white man has for the most part kept a prudent distance. The political conquest of this portion of Mexico has made small headway or none at all in a century, but, more fortunately, a scientific conquest of the islands off the west coast has been made under such leaders as C. H. Townsend, A. W. Anthony, Walter E. Bryant; and, more recently, George Willett, Howard W. Wright, and A. B. Howell. "Fortunately"; for with the advent of Mexican shepherds or fishermen to these islands came rats or cats or other vermin, which, lacking the controlling factors of mainland conditions, have nearly done for much of the native feathered life. The Island of Guadalupe has been the chief sufferer; and this devoted spot now boasts no less than five "extinct" or extirpated species.

The case of Guadalupe is hopeless, and all scientists are left to mourn; but by common consent the islands called Los Coronados, lying off San Diego within Mexican waters, are a sort of classical resort (not to say plunder-box) for American ornithologists; and the ultimate welfare of the

feathered inhabitants of these islands will lie rather with American forbearance and good faith than with Mexican piety.

Four species of birds, namely, the Socorro Petrel, the Black Petrel, the Xantus Murrelet, and the Frazar Oyster-catcher, have here their northernmost stronghold; and their occurrence upon islands of the Santa Barbara group or the waters of San Diego is rather incidental to their occupation of Los Coronados.

Mr. Alfred Brazier Howell, being for some months resident on the islands in 1910, enjoyed unusual facilities for the study of their bird-life; and it is chiefly to his account, published in Pacific Coast Avifauna, Number 12, 1917, that I am indebted for information regarding both the Socorro Petrel and the Black Petrel.

The Socorro Petrel breeds only in burrows of its own excavation, and appears to require fresh ones each year. For this purpose light loamy soil is selected, and the birds resort alike to open situations or to brush-covered areas. The nesting tunnels, usually about two feet in length, have narrow entrances, much wider than high, and they twist sharply either to right or left within a few inches of the mouth. The nesting chamber is considerably enlarged and is usually lined indifferently with twigs or rootlets. The single egg varies, as do all petrels' eggs, from pure white to those having faint wreaths of lavender dots about the larger end.

The season of fresh eggs is late June or early July; but there is reason to suppose that the nesting burrows are provided as much as two or even three months in advance of final occupation.

Unlike its larger relative, *O. melania*, this form but rarely vomits oil when removed from the burrow; but it will often do so on the wing immediately after being released. In addition to the staple diet of rock lobsters in the juvenal stage, young squid an inch or so in length have been found in the crops of freshly killed specimens.

O. l. socorroensis, as is well known, exhibits a great variety of plumage as to its rump, ranging from a phase which has a sooty black rump, nearly concolor with the back, to a phase whose rump is as white as any *beali*. This variety is not correlated with season, sex, or age, inasmuch as dark-rumped and light-rumped birds are found in the same burrow. This variability, moreover, appears wherever the subspecies occurs; and appears also in the closely related *O. leucorhoa* (*?*) *monorhis* of eastern Asiatic coasts. Howell believes that he has evidence of a historic increase in the number of white-rumped individuals; and surmises that we may have here a highly plastic form which is undergoing a total, or totospecific, change from a uniformly dark to a white-rumped species, rather than an incipient "splitting" into races. Whatever be the significance of this

variable quality, it presents an interesting contrast with the stolid conservatism of the other members of the *beali-leucorhoa* type.

No. 414

Coues's Petrel

A. O. U. No. 108. **Oceanodroma homochroa** (Coues).

Synonym.—Ashy Petrel (name inappropriate).

Description.—*Adult:* General color plumbeous black (very deep "ashy"), clearest on back, crown, and sides of neck, lighter ashy on throat and sides of rump; under tail-coverts plumbeous; considerable outcropping of white on under surface of wing; belly and sides sooty brown, faintly washed with ashy, the usual light drab or flaxen wing-patch formed by exposed edges of greater coverts, or else this patch clear ashy (fresh plumage?). Bill and feet black. Length (av. of 7 Monterey Bay specimens): 193 (7.59); wing 136 (5.35); tail 75 (2.95); depth of fork 24 (.94); bill 13.2 (.52), depth at base 5.6 (.22); tarsus 22.2 (.87).

Recognition Marks.—Towhee size, the smallest of our petrels; ashy cast of plumage and absence of white on rump distinctive for size.

Nesting.—*Egg:* Single, oval, pure white, or, very rarely, faintly wreathed with reddish dots; placed in crevice of wall or rock slide or under driftwood. Av. size 28.7 x 21.8 (1.13 x .86). *Season:* c. June 1st.

Range (Wholly contained within California waters).—Breeds chiefly on the Southeast Farallon Island, but also sparingly south to Santa Cruz Island. Obtained elsewhere only off Monterey, and in waters adjoining the western Channel Islands.

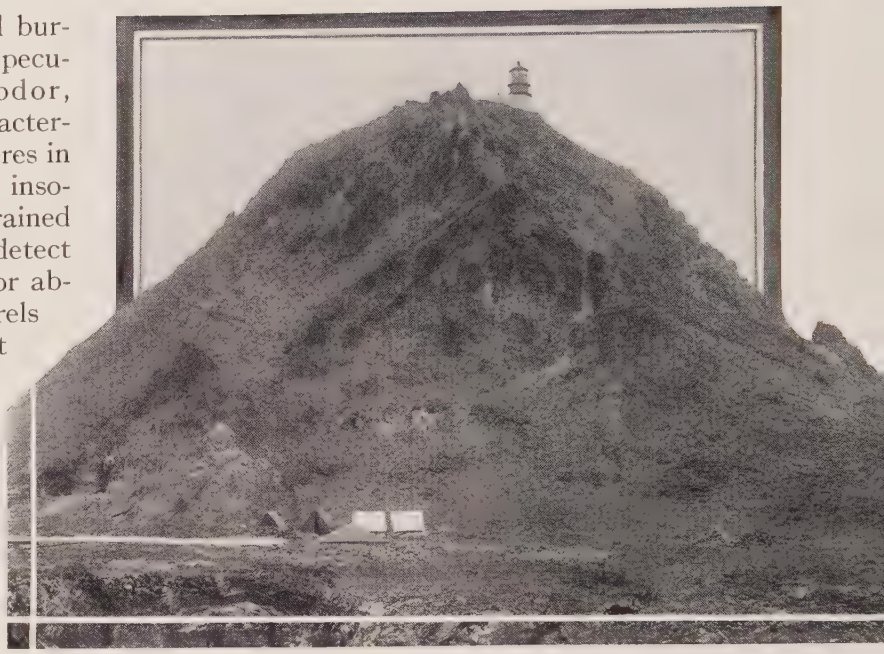
Authorities.—Coues (*Cymochorea homochroa*), Proc. Acad. Nat. Sci. Phila., 1864, p. 77 (orig. desc.; type locality, Farallon Islands); *Dawson*, Condor, vol. xiii., 1911, p. 177 (Farallon Ids.; habits; nomencl.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 34 (s. Calif. ids.); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 171 (syst.; eggs); *Bent*, U. S. Nat. Mus., Bull. no. 121, 1922, p. 159 (life hist.).

UNCLE SAM may flatter himself that he owns the Farallon Islands, those guardian rocks which lie like couchant lions some twenty-five miles off the entrance to the Golden Gate—and, indeed, it is fortunate that Uncle Sam has the say regarding human intruders—but his claims are flimsy and superficial in comparison with those of the ancient occupants. The real owners of these storied piles are the gulls, the murres, the auklets, and the petrels. Their title antedates the Doomsday Book, or possibly the Garden-of-Eden decree itself. The claims of the petrels, at least, are not obtrusive; and these gentle birds find the works of man,—stone walls, mortarless bulkheads, and the tiny railroad embankments, which extend from the landing place to the keepers' houses,—very much to their liking. If you would realize the full extent of Petreldom, you must wait

until the sound of the phonograph has died out at the Wireless Station and the gossiping keepers' wives have gone to bed; then steal forth with a lantern and listen to the babel of the underworld. Lay your ear to a stone wall, which marks some tumbledown Russian fort, and you will hear the love song of dusky swains, gallants whose ancestors courted in the neighboring rockslides before historic Russia was dreamt of, or ever the Great Horde had left its steppes. The walls which support the zig-zag pathway up to the old lighthouse, the oldest on the Pacific Coast, are vocal with Petrel music; while out of the honeycombed base of the tower itself come the same weird sounds. The whole island is a-titter with Lilliputian music; but so tiny are the sounds that the ear scarcely distinguishes individual notes at thirty feet; and the entire local chorus is likely to be drowned out by the voice of a single Cassin Auklet youngster yelling for its mother.

On May 20th, 1911, I pitched a lonely tent in a little level space just east of Franconia beach. There was no wind, *for once*, so when my feathered neighbors began to tune up at about nine o'clock in the evening, I tiptoed over to a short rock wall which had served as a wind-break for some crew of seal-hunters. The racket came from the lower courses of rough masonry, and there seemed to be at least half a dozen birds "going it" in close proximity. The sounds made by the Coues' Petrel are noticeably different from Beal's, of earlier knowledge, being lighter, sharper, and much more varied in character. The "*Petteretterell*" note is sharpened and obscured, insomuch that the imitative character of it is almost lost to sight. In their burrows or crevices Coues' Petrels indulge a variety of cooing and croaking, or chittering notes—love songs, undoubtedly. In the open a sharp, saucy crowing note is often heard, a sort of challenge, or look-at-me cry, which I surmise is uttered by the male only. It is sometimes uttered a-wing, but more often when the bird is perched on some trifling vantage point of rock. This note is wonderfully expressive; and although it is pitch dark we can picture the little corporal strutting or swelling in an endeavor to attract feminine attention. The little fellow is wonderfully alert, too, at this time, and a quick pounce in the dark usually drives away but does not capture the singer.

Investigation of carefully-marked localities disclosed no birds on the morrow. From this and other indications we concluded that the birds spend only the nights of a certain courting season ashore. This is followed by the customary honeymoon period of a week or ten days, during which both birds remain ashore daytimes, the male probably feeding his mate with the booty of a night foray. After the egg is laid only one bird attends it, but this is as often as not the male, and it is probable that there is some regular alternation of duties.



Taken on the Southeast Farallon *Photo by*

NESTING GROUND OF THE COUES PETREL

All Petrel burrows have a peculiar musky odor, and this characteristic odor inheres in the bird itself, insomuch that a trained nostril can detect the presence or absence of Petrels by sniffing at the crevices. When disturbed or captured, the bird immediately ejects a strong-smelling oil from which its own *senteur propre* undoubtedly proceeds. This oil is derived from the tiny squids and crustaceans — chiefly the nauplius form of the rock lobster, it is said — which constitute the Petrel's staple food, and represents merely a normal product of digestion. This chyme is discharged copiously, sometimes to a distance of two or three feet, and it is probably offered as a ransom rather than as a repellant. Its forcible discharge involves the bird's nostrils and is attended by considerable discomfort, as subsequent sneezings and efforts to clear the nasal passages show. The young are fed by regurgitation with this same most assimilable oil; and it is this, in all probability, which the male offers to his mate after the lengthy quest a-sea.

The egg of the Coues' Petrel, pure white or with a faint wreath of cinnamon about the larger end, is large for the size of the bird, as is the case with most monotokous species. It is about the size of that of the Storm Petrel (*Procellaria pelagica*), decidedly smaller and perhaps a little more rounded than that of the Beal Petrel. Its deposition occurs about the 1st of June, varying somewhat with the season, and the bird is occupied with its care and that of the young for fully two months.

While the interstices of stone walls are undoubtedly the favorite

nesting sites of these petrels, the insufficiency of such cover drives many to share the teeming rock-slides with the Cassin Auklets, and others to burrow in the open ground. Others still are to be found skulking under boards or logs in the drift of the tiny beaches.

The Farallon Islands are given as the type locality, and the species is known chiefly from the Southeast Farallon, upon which the lighthouse stands. There is, however, an early account of their nesting on San Miguel, although this has not recently been confirmed, perhaps owing to the changing character of the island surface. Mr. Howard W. Wright found a few breeding in the Painted Cave on Santa Cruz Island. Their presence in adjacent waters during the breeding season assures us that other colonies will yet be found on the Santa Barbara Islands. Of its migrations we know little; and it is probable that it does not depart widely in winter from its breeding area.

The former name, "Ashy Petrel," as applied to this bird, is very misleading. Its use suggests a type of coloration similar to that of the Fork-tailed (*O. furcata*), whereas the general cast of color is only a little less sooty than that of *O. l. beali*. It does incline to "plumbeous," but is much nearer black than "ashy." Rather than perpetuate this misconception, we recommend the use of the name of the original describer, Coues.

No. 415

Black Petrel

A. O. U. No. 107. **Oceanodroma melania** (Bonaparte).

Synonym.—Black Fork-tailed Petrel.

Description.—*Adult:* In general sooty black; color of wing-quills and tail scarcely more intense than cervix and lesser wing-coverts; paler, sooty brown, below; palest, drab or even whitish, on tips of middle and exposed portions of greater wing-coverts. Length (av. of 10 Monterey specimens): 232 (9.13); wing 174.7 (6.85); tail 83 (3.27), depth of fork 25.8 (1.02); bill 15.3 (.60), depth at base 7 (.27); tarsus 31.9 (1.25).

Recognition Marks.—The largest and blackest of the California petrels; *no* white on rump; much larger than *homochroa*.

Nesting.—Much as in *O. l. beali*. Av. size of egg 35.1 x 25.9 (1.38 x 1.02). *Season:* Late June, early July.

General Range.—Breeds from Los Coronados Islands south to Tres Marias Islands, off coast of western Mexico. Forages north at least to Monterey.

Distribution in California.—Common in summer in southern coastal waters and around the Santa Barbara Islands, and ranges north to Monterey. Not known to breed in California, but probably does so.

The Black Petrel

Authorities.—Bonaparte (*Procellaria melania*), Compte Rendu, xxxviii., 1854, p. 662 (orig. desc.; "Calif."); *Godman*, Monogr. Petrels, pt. i., 1907, p. 24, pl. 6 (Santa Barbara Ids.); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 32 (s. Calif. ids.; nesting, habits, etc.); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, 1918, p. 174 (syst.).

GIVEN the knowledge of its nesting site, it is comparatively easy to learn something, whether by furtive methods or violent, of the behavior of any species of petrel—thus, that it lays a single white egg in a burrow, that it throws up an ill-smelling oil when disturbed, etc., etc. But the little we have been able to learn of the behavior of petrels at sea, where they spend at least two-thirds of their time, is like radium for rarity. They that go down to sea in ships bring their own terrors with them, insomuch that these timid little foam-flutterers are not minded to tarry and see what this monstrous black object looming large upon a boundless horizon will do to them. A flickering bat-like flight characterizes most of them, and the absence of curiosity, such as excites many oceanic species. Food is either snatched from the surface of the ocean in passing, or else hastily gulped down as the bird sits uneasily upon the water. Solitary birds are the rule, and they cannot ever be counted gregarious upon the ocean, even though abundance of food may temporarily attract many to a common center.

And yet all these rules find exceptions, as witness the following paragraph from Anthony, a high authority:

"In August and September petrels are more common off our southwestern coast than during the rest of the year. The birds that have finished nesting congregate in regions where food is abundant, often following vessels for long distances to pick up what scraps of suitable food may be thrown over. I have on several occasions hooked *O. melania* with a small hook baited with a piece of seal blubber, but as a rule they decline to be taken in by any such means. Both *O. melania* and *O. socorroensis* will at times dive a foot or more below the surface for a piece of meat that is sinking if they are hungry, but diving seems to be out of their usual line of business and is only resorted to when food is scarce. They seem to be unable to get below the surface of the water without first rising two or three feet and plunging or dropping, exactly as I have seen the Black-footed and Short-tailed Albatrosses dive under similar circumstances."

Mr. Anthony first encountered the Black Petrel on the 21st of April, 1896, on the Coronado Islands, which are still the northernmost known breeding station of the species. He describes the notes, heard in the open, as *Tuc-a-roo, tuc-tuc-a-roo*. One bird he traced to a burrow, where it made a clicking sound, but no egg rewarded his search; and he concluded that

this species, like the Socorro, does not deposit its eggs till June. April is the month of mustering and nest-digging; May is spent chiefly at sea; June sees the honeymoon and the laying of the egg; July is the moon of young birds, and August of weaning and departure. Yet even in August certain couples, delayed or disappointed or dilatory, will dodder over eggs whose ultimate hatching is against the traditions of their kind.

A later observer, A. B. Howell, says: "The best place to look for nests is under and between good sized boulders. Here a little dirt may be scratched away at the entrance or at the nest cavity. From over a hundred nests examined I have found only a half a dozen occupying true burrows that may have been excavated by the birds themselves, but as these were all in a colony of *socorroensis*, I prefer to believe that they were originally made by the latter and then preëmpted by *melania*. Half a dozen more were in very old burrows of the Cassin's Auklet. . . . This form does not nest in true colonies but is apt to be scattered anywhere about an island. Occasionally where favorable sites occur, several nests will be within a few feet of each other. . . . The young are covered, except for the chin, with a slate-colored down. When the feathers appear this clings to the ends of them and does not come off until after the body feathers at least have made their full growth."

No. 416

Wilson's Petrel

A. O. U. No. 109. **Oceanites oceanicus** (Kuhl).

Description.—*Adult:* "Sooty black, forehead and under surface paler; greater wing-coverts greyish; upper tail-coverts white; under wing-coverts sooty; tail black, shafts of the lateral rectrices towards the base and the portion of the inner web adjoining white; bill black; legs black, inner portion of the webs between the toes yellow. Total length about 6.8 [mm 172.7], wing 6.1 [mm 154.9]; tail, lateral rectrices 2.7 [mm 68.6], central rectrices 2.45 [mm 62.2]; bill 0.7 [mm 17.78]; tarsus 1.37 [mm 34.8]." (Salvin.)

Recognition Marks.—Sparrow size; much like resident petrels, but a little smaller. Long legs and yellow webbing of feet distinctive.

Nesting.—Does not breed in California. *Egg:* Single, white; placed in crevice of cliff or rock-pile or under stones. Av. size 28.7 x 22.86 (1.13 x .90). *Season:* February (Kerguelen Id.).

General Range.—Antarctic seas, breeding in February and ranging north to Labrador and the British Islands, and in the Pacific to Peru.

Occurrence in California.—Accidental; one record; Monterey Bay, August 24, 1910, by R. H. Beck (Grinnell).

Authorities.—Grinnell (*Oceanites oceanicus*), Pac. Coast Avifauna, no. 11, 1915, p. 29 (Monterey Bay, August 24, 1910, one specimen); *Loomis*, Proc. Calif. Acad. Sci., ser. 4, vol. ii., pt. 2, no. 12, 1918, p. 180 (Calif. occurrence); *C. W. Townsend*, in Bent, U. S. Nat. Mus., Bull. no. 121, 1922, p. 165 (life hist.).

PETRELS are professional vagrants, but we have no guarantee that this *Oceanic cuss*, who hailed from Antarctica, will ever turn up again off our coasts, as he did (to his undoing—see specimen No. 18742, in Mus. Vert. Zool., Berkeley) on August 24, 1910.

Wilson's Petrel breeds in certain favored localities on the Antarctic Continent, as well as on adjacent islands, and has been seen some sixty miles from open water in Latitude 78 degrees 30 minutes South. It appears to be tireless on the wing, and has been compared both for the height and the grace of its aerial evolutions with the Martins or the Swifts. In this respect it is utterly unlike our native petrels, as well as by reason of its long legs, which enable the bird to tread the water as though to steady itself while picking up a dainty morsel.

No. 417

Common Loon

A. O. U. No. 7. **Gavia immer** (Brünnich).

Synonyms.—Loon. Great Northern Diver.

Description.—*Adult in summer:* Head and neck black with metallic reflections, most intense on lower neck; middle of the throat crossed by a narrow bar of white streaks; a similar but wider bar on each side of neck lower down; underparts in general pure white, the sides like back; a narrow open-V-shaped anal band of dusky; under tail-coverts black or variously tipped with white; upperparts greenish black, sharply spotted with white in regular transverse rows,—the spots mostly squarish, smallest on the upper back and rump, largest on lower scapulars; the sides similarly ornamented with rounded spots; sides of cervix black-and-white, streaked or striped; wing-quills blackish, with warm purplish reflections. Bill black; feet and legs black externally, yellow internally; iris carmine. *Adult in winter and immature:* Above dark brown, clear and greenish glossed on crown and back of neck, feathers of the back, etc., more or less heavily tipped with ashy gray or dull buffy; underparts white; throat white, or faintly dusky-flecked-and-shaded, on sides of head and neck, shading or alternating with brown of upperparts in large dentations; dusky of sides much restricted. Bill light blue with dusky ridge; feet brownish dusky externally, yellowish internally. Length 711.2-914.4 (28.00-36.00); wing 355.6 (14.00); tail 66 (2.60); bill 73.66 (2.90), along gape 101.6 (4.00); tarsus 86.4 (3.40).

Recognition Marks.—Brant to eagle size; back black speckled with white; head and neck black interrupted by white-streaked spaces; below white; large, pointed bill. Large size distinctive as compared with other divers.

Nesting.—*Nest:* A bulky platform of rushes or sticks and trash, on ground near water, or else eggs laid in depression of sand or gravel. *Eggs:* 2, 3 of record; elliptical oval, elongate ovate, or, rarely, fusiform; buffy olive or light brownish olive to brownish olive, olive-brown, or rarely deep olive, spotted sparingly with darker or blackish.

Av. size 88.9 x 56.2 [3.50 x 2.21] (Bent); index 65.4. *Season:* May, June, July (according to latitude).

General Range.—North America and the American Arctic regions east to Novaya Zemlya; winters south to the Mediterranean. In America breeds from highest Arctic latitudes south to northern California, northern Iowa, northern New York, and northern New England (formerly to Illinois, Pennsylvania, and Massachusetts). Winters from the Great Lakes, British Columbia, and southern New England, south to Florida, the Gulf Coast, and Cape San Lucas.

Distribution in California.—A rare breeder in the northern Sierra Nevada south (at least formerly) to Mt. Lassen and Eagle Lake. Common in winter along the entire coast and occasional on inland bodies of water, even on the Colorado River (Grinnell).

Authorities.—**Newberry** (*Colymbus glacialis*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 110; *Henshaw*, Rep. Orn. Wheeler Surv., 1879, p. 333 (Eagle Lake, breeding); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 10 (occurrence in s. Calif.); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 47, pls. (life hist.); *Forbush*, Massachusetts Dept. Agric., Bull. no. 8, 1922, p. 16 (under-water activities).

LIFE BEGAN on the ocean. The ancient mother of us all is the ever-pregnant sea. Many of her children have forsaken her, and many have forgotten; but some also have remained true through all the ages. Among the loyal must ever be counted the Loon, who, though she rears her young in some Arctic lakelet or mountain mere, returns ever and again to the shelter of the ancestral breast.

It is the fashion now among scientists, and probably a good one, to begin any orderly enumeration of species in any life series with the lowest form. (We have departed from this custom in this work simply because the *order of interest* runs the other way.) By "lowest" we mean both earliest in point of emergence in time, and simplest in structure. Now although there are ten or a dozen other and lower "orders" of bird-life known, as, for example, *Struthioniformes*, the Ostriches, or *Sphenisciformes*, the Penguins, it so happens that the lowest orders found in California, or indeed in North America, are those of the *Colymbiformes*, the Divers, and the *Podicipides*, the Grebes.

No man claims wisdom enough to judge between the rival claims of these two primitive and closely related orders. Indeed, some have placed the two groups together, in sheer despair. If we yielded priority to the larger (and unquestionably the handsomer) birds, the Loons, it would be for sentimental rather than structural reasons, and in recognition of that unforgotten loyalty already referred to.

As we gaze upon some ocean greyhound lying at her moorings, we note with kindling eye the graceful lines of bow and stern, the suggestive inclination of mast and funnel, and we declare her perfect for her chosen element, the sea. We know that a trans-Pacific liner would cut a sorry

figure on land and a sorrier still in the air, but we do not allow ourselves to be disturbed by such comparisons. Viewed strictly as a water-bird, as Nature intended, the Loon is a paragon of beauty. Alert, supple, vigorous, one knows himself to be in the presence of the master wild thing, when he comes upon a Loon on guard in his native element. The bird seems to move about almost without effort, a single backward kick of one of those immense paddles serving to send it forward at any desired speed, while the head is turned inquiringly from side to side as if to take your measure. A shout, a false motion, the flash of a gun, and the wild thing has vanished, leaving scarcely a ripple to mark its recent resting place. It reappears, if at all, at a surprisingly great distance, and if really alarmed, only the head is thrust out of water to take breath, get bearings, and disappear again.

A Loon is not invulnerable, but an educated bird must be secured by stealth or guile, if at all. Generations of gun practice have made the bird such an expert diver that, given room enough in which to dive, it is all but impossible to shoot one. Once on a northern lake, when I was really desirous of securing a specimen, I concealed myself behind an eminence with a Winchester rifle, and shot down at a supposedly unsuspecting Loon. After the first shot the bird turned and paddled slowly toward the ambuscade, with what seemed like an amused smile playing about his features. After the seventh shot, the disappearing target tired of the game and vanished altogether. Poor marksmanship? Not a bit of it. Expert diving! On the other hand, I shall never recall without a surge of shame another bird just offshore, which was only to have been frightened. I was in full view and brought up the shot-gun without attempt at concealment. The bird never flinched. Sheer butchery! But how is one to tell an *ingenu* from an old-timer? I have done with Loon shooting.

Under water the Loon moves with great rapidity, using its wings to assist its progress. It is able, thus, easily to overtake a fish, which it transfixes by a stroke of its dagger-like beak and brings to the surface for consumption. When the water is clear enough to admit of it, it is a delight to watch the air-bubbles which cling to the diver in the translucent depths, like a silvery coat of mail, and which he shakes off only upon emerging at the surface again.

In singular contrast to the Loon's facility and grace in the water, is its behavior upon land. Since the feet are placed so far back, it must stand nearly upright, penguin-fashion; and its walk is an awkward, shuffling performance; or else, as is more likely to be the case, the bird flounders along on all fours. It is said not to be able to take wing from the ground at all. In rising from the water the bird humps over in an agony of effort, rising only by slow stages, first by threshing the surface of the water with

wings and feet, then by combined running and flying, until the feet clear at last, and the aspirant attains a proper motion. Once started, the Loon's flight is swift and powerful, the wings accomplishing by rapid vibration what they lack in expanse. But the most helpless act of the Loon's life is that of alighting.

One early April day upon an interior lake, the author, with a companion, had the combined good-and-ill-fortune to be caught out in a skiff at the approach of a violent storm. There was a considerable flight of Loons in progress; but many of the birds, being warned by the storm signs, began to settle from invisible heights toward the welcoming lake. This they did, not by inclining the wings, but by moving in small circles, with wing-beat restrained to an apparent minimum; thus sinking slowly through the operation of gravity. As they neared earth, the earlier arrivals circled overhead in stately squads, and exchanged greetings or inquiry with others already seated upon the water. A soft, mellow, mirthless laugh, *Whoogh, hoo hoo*, would ring out over the lake and be answered from a distance, perhaps a mile away. When the mind of a newcomer was thoroughly made up to the painful necessity, say at a hundred yards, he ceased beating the air, set the wings stiffly, and began to *fall* obliquely toward the water. No doubt he dreads the shock, but the very desperation of resolve is painted on every feature, till—crash! goes the luckless fowl and is momentarily lost to sight in the upheaval of waters. Some fall like spent meteors, until it would seem they must perish in the shock, or at least break bones; especially, since the bird invariably strikes the water with outspread wings. No casualties result, however, and a few, more expert, come at such a low angle as to distribute the force of impact in a long furrow. Talk about "shooting the chutes"; it was no Yankee who invented that game. It was a Loon.

Faster and faster came the descending birds, and less and less pains did they take with the manner of descending until, when the storm-cloud burst in good earnest with an all-obliterating crash of rain, the last Loon had been gathered to his fellows, and the birds raised an exultant chorus of weird laughter.

Because of its infirmity of gait, the Loon usually nests quite near the water's edge, on some wood-bound lake or solitary mountain mere, so that it may glide into the water unobserved, at the approach of danger. And because the eggs are of such a perfect mud-color themselves, there is little attempt made to conceal the nest. On the contrary, a position on some promontory, or projecting log, is chosen, so that the bird may command with its watchful eye a wide stretch of territory. Treasure trove the Loon considers the stub of some submerged tree broken off at the water line. Here, if the water is quiet enough, she heaps up a miscellaneous mound of

grass, moss, roots, and floating stems. The external diameter of this island citadel may be as much as three feet, and its depth one; but at another time the bird is as likely to deposit her eggs on a sandbar with little or no pretense at a nest.

Young Loons "dive from the shell," and master water thoroughly before they dream of flying. Soon after the chicks are brought off, the parents separate for the rest of the season, the male retiring either to some unfrequented lake or to the seacoast to undergo the summer moult. At this season both birds cast their feathers, so thoroughly, indeed, as to be for a time quite incapacitated for flight. When the young birds can use their wings, they are taken to salt water, and lead thenceforth an idle life, whose chief, or it may be sole, anxiety is the dodging of bullets.

No. 418

Pacific Loon

A. O. U. No. 10. **Gavia arctica pacifica** (Lawrence).

Synonyms.—Pacific Diver. Western Loon. Lawrence's Black-throated Diver.

Description.—*Adult in summer:* (Somewhat similar to preceding species, but top of head and nape light bluish gray); chin and throat black with violet and purplish reflections, shading on side of neck through black-and-white-streaked area into dull smoke-gray on crown and light ashy on hind-neck, the streaked patches connected across throat anteriorly by a necklace of short white streaks in sharp relief; underparts white, the sides like back but scarcely spotted, the anal dusky band narrowing centrally; under tail-coverts wholly black or else white-tipped; upperparts black with purplish reflections; feathers of scapulars and interscapulars each with subterminal squarish spot of white, thus forming four patches of transverse white rows; wing-coverts speckled with smaller oval spots of white; sides of cervix sharply black-and-white-streaked, as in *G. immer*. Bill black, relatively smaller than in *immer;* feet and legs black externally, yellowish dusky internally; eyes red. *Adult in winter and immature:* Corresponding closely with similar stages of *G. immer*—crown and nape lighter. Length (av. of 10 Monterey specimens): 584.2 (23.00); wing 297.2 (11.72); bill 55 (2.17); tarsus 75 (2.95).

Recognition Marks.—Brant size; like *G. immer*, but smaller; top of head and nape in summer plumage bluish gray; without white speckling on back, as distinguished from *Gavia stellata;* not to be distinguished out of hand even in breeding plumage from *Gavia arctica*, which is larger.

Nesting.—Does not breed in California. *Nest* and *eggs* much as in preceding species, but egg narrower, sometimes cylindrical ovate and averaging darker, even to "mummy brown." Av. size 75.5 x 47 [2.97 x 1.85] (Bent). Index 62.2. *Season:* June 8–July 23.

Range of *Gavia arctica.*—Northern part of Northern Hemisphere, south in winter to the Mediterranean, the Caspian Sea and Japan. In America as follows:

Range of *G. a. pacifica*.—Northern portions of North America. Breeds from western Ungava and northwestern Greenland, Banks Land, and Point Barrow, south to the Aleutians, Alaska Peninsula, central British Columbia, Great Slave Lake, and central Keewatin. (Records from extreme western Alaska and the eastern Asiatic coast probably pertain to *G. a. viridigularis* Dwight.) Winters south chiefly along the Pacific Coast from British Columbia to Lower California. Casual in several of the Central States and on Long Island.

Distribution in California.—Common winter resident and migrant the entire length of the coast and about the Santa Barbara Islands. Decrepit or non-breeding birds occasionally seen in summer. Visits bays, harbors, estuaries, and, rarely, neighboring fresh-water pools.

Authorities.—**Lawrence** (*Colymbus pacificus*), in Baird, Rep. Pac. R. R. Surv., vol. ix., 1858, p. 889 (orig. desc.; San Diego); *Evermann*, Auk, vol. iii., 1886, p. 88 (coast of Ventura Co., winter); *Nelson*, Rep. Nat. Hist. Coll. Alaska, 1887, p. 36 (desc.; nesting habits; eggs; young); *Howell*, Pac. Coast Avifauna, no. 12, 1917, p. 18 (s. Calif. ids.); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 67, pl. (life hist.).

HUMILIATING it unquestionably is to be obliged to confess a virtual ignorance of such a sizable number upon our nearly finished program. But the fact is that this bird, although common in winter throughout the length of our coasts, is both so wary and so inconspicuous, not to say uninteresting, that it seems to have made no particular impression on the ornithological consciousness. Divers of this and the succeeding species are especially abundant about the Santa Barbara Islands. They are disturbed by every passing steamer, and are known chiefly to fishermen as picturesque objects upon the horizon. It is considered a mark of ill-breeding on the part of Pacific Divers to sit in the presence of an approaching steamer—there might be ladies aboard. Hence, while the beauty-laden boat is yet a great way off, the bird summons his forces, brings his feet as near as possible to his nostrils, struggles manfully with his awkward fate, and finally emerges from his watery bed, a polite, albeit very ungainly creature. As the bird rises in air, the head and feet, which were last to leave the water, gradually drift apart, the head is thrust forward, the feet backward to the natural limit, the wings move through an exaggerated arc, and the bird goes on his way rejoicing, a conscious Beau Brummel of the seas.

One occasion only, to the birdman's recollection, relieves the drab impression left by the Pacific Loon. It was the 13th day of April, 1915, and it was blowing—well—*little* guns, off the west end of Santa Cruz Island (as usual!), when I spied a company of loons breasting the wind and fishing in the outer surf, just clear of a bold sea-wall. They were very wary, but by dint of a snake-like approach and a favoring screen of grass upon the cliff crest, I beheld a truly magnificent sight, a squadron of some 200 of these loons, of whom more than half were in full spring plumage.

The green water, the curling spume, and this fleet of thoroughbreds, each one more perfect than a model from Herreshof's, made a never-to-be-forgotten moment. It was all so eerily simple, as though one had stumbled on the Spanish Armada at anchor in a forgotten cove!

The Pacific Loon has need to be an expert a-wing as well as a-sea, for its breeding grounds are chiefly along the Arctic shores. We do not understand, however, why *pacifica* should tarry with us nearly a month longer than does the Red-throated Loon, *Gavia stellata*, which nests even further north. According to Beck, these birds pass Point Pinos in great numbers *toward the end of May*, while stragglers may be found well into June.

Taken in Oregon *Photo by William L. and Irene Finley*

PORTRAIT OF PACIFIC LOON

No. 419

Red-throated Loon

A. O. U. No. 11. **Gavia stellata** (Pontoppidan).

Synonyms.—Red-throated Diver. Sprat Loon.

Description.—*Adult in summer:* Head and neck light neutral gray, blackening on crown, and enclosing a longitudinal patch of rich chestnut-red on lower neck and throat; upperparts and sides brownish black with greenish reflections, the feathers of nape, hind-neck, and sides bordered or spotted with white, sharply on nape and cervix,

shading through finer spots on sides of neck and running out in the sparse oval spotting of back and scapulars (some specimens are almost unmarked on back); underparts, abruptly defined from chestnut of lower neck, white; under tail-coverts and band across lower belly dusky, as in other loons, the included white area nearly obliterated in high plumage. Bill black; feet blackish. *Adult in winter and immature:* Without chestnut on neck; appearing much as in corresponding stage of *G. immer*, except that the upperparts are everywhere profusely and finely spotted with white. Length (av. of 10 Monterey specimens): 589.6 (23.20); wing 288 (11.34); bill 51.8 (2.04); tarsus 72.9 (2.87).

Recognition Marks.—Brant size; somewhat like *G. pacifica*, but averaging a little larger; chestnut of throat distinctive in summer, and white spotting of upperparts unique in winter.

Nesting.—Does not breed in California. *Nest* and *eggs* much as in *G. immer*. Eggs indistinguishable from those of preceding species. Av. size 72.5 x 45 [2.85 x 1.77] (Bent). Index 62. *Season:* June and early July.

General Range.—Northern portion of Northern Hemisphere, south in winter to the Mediterranean, Black Sea, and China; and in America to southern California and Florida. In America breeds from highest latitudes south to New Brunswick, central Quebec, southern Mackenzie, Queen Charlotte Islands, and the Aleutians.

Distribution in California.—Common winter resident and migrant along the coast, especially southerly. Casual in the interior.

Authorities.—Heermann (*Colymbus septentrionalis*), Rep. Pac. R. R. Surv., vol. x., 1859, p. 76 (San Diego); *Townsend*, Proc. U. S. Nat. Mus., vol. x., 1887, p. 191 (Ft. Crook, Shasta Co.); *Forbush*, Massachusetts Dept. Agric., Bull. no. 8, 1922, p. 16 (under-water activities).

WHEN ONE sees a small Loon at close quarters, as from the vantage of a wharf, he notes with satisfaction the white spotting of the back, which proclaims the Red-throated Loon. Of course it couldn't be anything else, for a Pacific Loon, the one without the white spotting, would not let you get so close. My! but it is a pretty sight to see a straightaway race between this bird and a herring. The fish rises instinctively toward the surface with the bird in hot pursuit, and it takes, it may be, only twenty feet after the Loon has come near enough to the surface to be seen, for him to catch the terror-stricken sprat. Once on the surface and overtaken, the fish tries twisting and turning, but the bird is better at it, and has him down in a trice. It is noteworthy that in the case of smaller fish at least, the Diver seizes its prey instead of spearing it.

In the vicinity of Santa Barbara, as at some other points on the California coast, we are painfully indebted to the exudations of certain oil-bearing strata for intimate glimpses of bird-life. The birds encounter the floating "tar" as they rise from fishing in the kelp-beds. The stuff smears their feathers and daubs their wings to such an extent as to interfere with action. In this plight the bird comes ashore, determined to spend half a day cleaning up. Here we find them in all stages of decrepi-

tude, sometimes partially successful so far as the cleaning is concerned, but inevitably sickened by the enteric action of the oil. Usually, when approached, the sick birds are able to make off through the surf, although the exertion takes just so much more from their fast-failing strength. A sick Loon whose portrait I sought did not retreat, but turning upon the photographer charged furiously. Her javelin beak struck the front board

Taken on Santa Cruz Island *Photo by the Author*

RED-THROATED LOON: WINTER PLUMAGE

of the Graflex a resounding blow (and left a sharp dent, too), whereupon she turned her attention to the birdman's shins. Another bird, surprised near the water's edge, sprang to wing ere the camera could act, and struck out through the surf. A male—I will not say *the* male, for it was winter, and there were other loons in sight—saw his comrade's plight and hurried up,—so anxiously, indeed, that he took wing in his haste, and did the shoot the chutes act with a fine display of wing and splash of water. After this the newcomer pressed toward me, as though to cover his chum's retreat, and paraded up and down at close quarters while the afflicted bird was pulling away. It is difficult to believe that either parental instinct or sex gallantry played any part here. It was rather an exhibition of pure altruism. Explain this who may, but altruism is as deep-seated an instinct as that of self-preservation.

Since Red-throated Loons pass Point Pinos about a month earlier than do their Black-throated relatives, I suppose those I observed on the 26th of April (1913) from a headland ten miles west of Santa Barbara were Red-throats. There was a light breeze blowing from the west, and this breeze the Loons, moving in platoons and squadrons a half mile offshore, were breasting briskly. A ten-minute count showed eleven platoons, viz., 41, 35, 38, 14, 5, 7, 1, 59, 27, 55, 32—totaling 314 birds.

The pace was the same at 12 m. and at 2 p. m.; while at 4 p. m. it had quickened to a showing of 272 birds in two minutes—say, 20,000 or 30,000 birds per day.

Of their occurrence in Alaska, Nelson says: "At Saint Michaels and the Yukon delta they arrive with the first open water from May 12 to 20, and by the end of this month are present in large numbers. Their arrival is at once announced by the hoarse, grating cries, which the birds utter as they fly from place to place, or float upon the water. When the ponds are open on the marshes the Red-throated Loons take possession, and are extremely noisy all through the first part of summer. The harsh *gr-r-ga gr-r, gr-r-ga, ga, gr-r*, rising everywhere from the marshes during the entire twenty-four hours, renders this note one of the most characteristic that greets the ear in spring in these northern wilds."

No. 420

Western Grebe

A. O. U. No. 1. **Æchmophorus occidentalis** (Lawrence).

Description.—*Adult:* Top of head and broad line down back of neck sooty black; remaining upperparts lighter brownish black, the feathers of the back varied by grayish edgings; primaries dark brown, whitening and with white shafts basally; secondaries chiefly white, but variable number of them darker on outer webs; entire underparts, including lining of wings and sides of head and neck, broadly, pure white with silky sheen, sometimes tinged with brownish gray on sides; lores brownish gray *or* white. Bill slender, sharply pointed, very slightly recurved, culmen black or blackish, mandible yellow or olivaceous; iris carmine; feet blackish and olivaceous. *Downy young:* Brownish gray above; white below. Females of this species have been described as *Æ. clarki*, on the ground of smaller dimensions, especially shorter neck, and minor differences of coloration. The case is a very puzzling one. We frequently meet in winter and in the migrations short-necked individuals that would appear to belong to another race, but the center of distribution of such a race is not known; perfect gradations are found to exist, and the alleged differences between male and female (whether of *occidentalis* or "*clarki*") do not appear to hold good. Perhaps the best we can say is that the Western Grebe is subject to considerable variation both as to dimensions and as to color of bill, lores, etc., and that females *average* smaller. Length of adult male: 609.6-736.6 (24.00-29.00); wing 203.2 (8.00); bill about 76.2 (3.00); tarsus 76.2 (3.00). Female ("*clarki*"): "558.8 (22.00); wing 177.8 (7.00); bill 58.4 (2.30); tarsus 69.9 (2.75)."

Recognition Marks.—Brant size; long slender neck; long sharp bill; abrupt demarcation of black and white on sides of head and neck; no rufous on neck; aquatic habits.

Nesting.—Nests in colonies. *Nest:* A floating raft or solid pyramid of rushes and coarse water-plants, 2 to 3 feet in diameter, at edge of swamp or lake. *Eggs:* 4 or 5; elliptical ovate or rarely fusiform; chalky bluish green when fresh, but rapidly

becoming nest-stained, buffy or sickly green to dingy brown. Av. size 58 x 37 (2.28 x 1.457); index 63.7. *Season:* 1st week in June; one brood.

General Range.—Western North America, breeding chiefly in the north central interior from central British Columbia, northern Alberta, north central Saskatchewan, and central Manitoba, south to Nebraska, central Utah, and southern California; wintering south chiefly in the Pacific Coast region from southern British Columbia to Jalisco, Mexico, east interiorly to Nevada (Pyramid Lake) and Arizona (Gila River).

Distribution in California.—Common winter resident and migrant along the coast and upon all larger interior bodies of water. Breeds regularly on Eagle Lake, Rhett Lake, and Lower Klamath Lake, and irregularly south to Merced Lake (San Francisco County) and even San Jacinto Lake; probably also at various points tributary to the San Joaquin and Sacramento basins in Tulare Lake and Buena Vista Lake, and in northern Mono County. Non-breeding birds linger along the ocean front throughout the summer, south to San Diego.

Authorities.—**Newberry** (*Podiceps occidentalis*), Rep. Pac. R. R. Surv., vol. vi., 1857, p. 110 (San Pablo Bay); *W. E. Bryant*, Auk, vol. ii., 1885, p. 313 (probable identity of *Podiceps occidentalis* and *P. clarkii*); *Finley*, Condor, vol. ix., 1907, p. 97, figs. (breeding colonies at Tule Lake and Lower Klamath Lake); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 1, pls. (life hist.); *Forbush*, Massachusetts Dept. Agric., Bull. no. 8, 1922, p. 6 (under-water progression).

PERHAPS the most favored region for the study of this most interesting bird lies within the protected areas of our northern Californian lakes, notably Lower Klamath Lake. Here the small remnant which managed to escape the ruthless pursuit of the plume-hunters, active as late as 1906, is gradually reoccupying the wastes of oozy channels and tule islands which have been from time immemorial their peculiar home. But in the still undevastated interior of British Columbia and Alberta similar conditions of cover exist, so that the breeding populations of these countries also, driven forth in winter, fall back upon our southern coasts. It is rather, therefore, as a winter visitant along the kelp-line offshore, in lagoons, and on the larger interior lakes, that the Western Grebe is commonly known to Californians.

The fall arrivals are somewhat unsophisticated, and will permit us to drift up close enough to observe the cruel blood-red eye which appropriately accompanies the javelin beak. The necks of these birds are very mobile and their heads are scarcely at rest for an instant, save as the gaze is riveted by fear or momentary curiosity. If fishing is dull and the observer on his good behavior, the company will float at ease rather than excite itself to pull away; and now and then a bird will seek relief by reaching upward and outward with one of its green paddles and wagging it vigorously,—apparently with no intended slight.

Fish form the principal diet of these grebes, and in the pursuit of them the birds exhibit great dexterity. Schools of herring and the like

are followed until capacity is exhausted. Indeed, the apparent gregariousness of this species in winter is probably due almost entirely to the aggregation of its prey; and the size of the grebe company observed is a loose index of the number of fish below. If successfully frightened *from* the water, not into it, the birds will scatter without regard to their fellows. One sees evidence of community feeling, however, in the case of small companies, for they will move in close order, diving and resting almost simultaneously, while one bird or another assumes the duty of watchman, remaining upon the surface and paddling along slowly in the direction taken by the submerged flock.

In diving, the Grebe's head describes a loop with lightning rapidity, and the body springs forward as though to accept a challenge from its vanishing leader. Considerable depths are visited, and the bird is by preference a fisher of the channels, leaving the shallows to his smaller kinfolk. If surprised at close quarters, the Grebe almost invariably seeks to escape by diving; but if there is sufficient leeway, as at the approach of a steamer, it will take to wing, not without manifest exertion. A-wing it is a singular looking creature. The legs, sticking out behind and inclined upward rather than downward, more than counterbalance the unusually long neck, so that the bird looks always upon the point of tumbling head foremost. The wings are moved quite rapidly, and the bird has no apparent control over its speed, save that it tips up somewhat before alighting. Even so, it strikes the water with a crash, with its feet spread awkwardly behind at diverging angles.

Taken in Washington *Photo by the Author*

NEST AND EGGS OF WESTERN GREBE

But even if he is so awkward in gait, the Grebe experiences no difficulty in making extended flights, as his presence in the interior lakes in May testifies. A colony of nesting grebes has a rare fascination for the birdman, for there is about it (pity to say, because the birds have been so thoroughly frightened) just that element of mystery which allures.

Taken in Oregon *Copyright by H. T. Bohlman*

AN INTERROGATION POINT

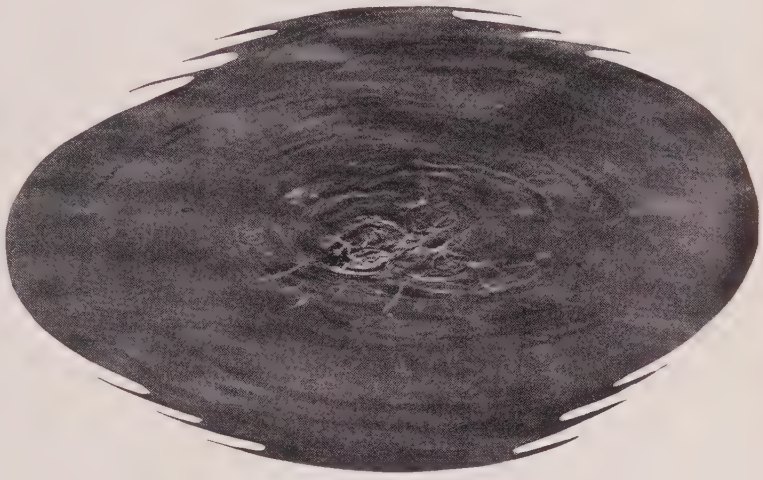
However populous the floating city may be *per se*, the owners are pretty careful to keep away while it is under review. It is only by stealth that one can unravel the mysteries of Grebetown, and a week's study leaves one far from satisfied.

The requirements are an extensive area of water-plants, preferably arums, but bulrushes (the immortal "tules") will do; shallow water to match; and fishing privileges in the open. The depth of water in the lakes is likely to vary from year to year, and the nesting ground may be shifted to correspond, but the nests are usually placed in from two to ten feet of water. For their construction the birds secure fresh materials, using chiefly green stalks and the root-stocks of the arums; if in shallow water, heaping the material up from the bottom until the mass rises several inches above the water; if in deep water, forming a floating island loosely anchored to the surrounding vegetation. But in either case, it is large enough and strong enough to support the weight of the sitting bird above water.

Here from three to five eggs are laid, of a delicate greenish blue color when fresh, but soon fading and becoming discolored through contact with decaying vegetation. The Western Grebe takes less pains than most members of its group to cover its eggs before leaving the nest. Occasionally a few coarse grasses are pulled over the eggs, and now and

then a nest is really covered. The eggs are subject to many vicissitudes. Ravens esteem them great delicacies. Forster's Tern does not, apparently, appropriate the eggs, but makes no scruple of driving the rightful owner from a nest which she happens to covet for her own uses. One wonders at the tame submission of a bird so splendidly armed; but the Terns are really very ugly, and have the advantage of being able to strike from above.

All these sources of annoyance, however, pale into insignificance before the devastation of a storm. Having a Grebe colony of some fifty nests under surveillance—in Washington, it was—I once lay out all night through a series of thunder- storms —which were the making of the wheat crop that year. In the morning I found that half of the Grebe nests had been wrecked and their contents scattered, while many of the remainder were badly injured. Two days later it was comical to note the confusion of ownership which necessity's law had brought about. Scarce a well-made nest but contained eggs of homeless neighbors. Two held seven, and one, eight, from half as many contributors. In most cases these eggs were either abandoned outright by the one imposed upon, or else covered over by a new nest hastily improvised. Finley records an instance, on Lower Klamath Lake, where sixteen eggs had been piled up by discommoded mothers on a bed of dry tules, without pretense of nest.



Taken in Santa Barbara *Photo by the Author*

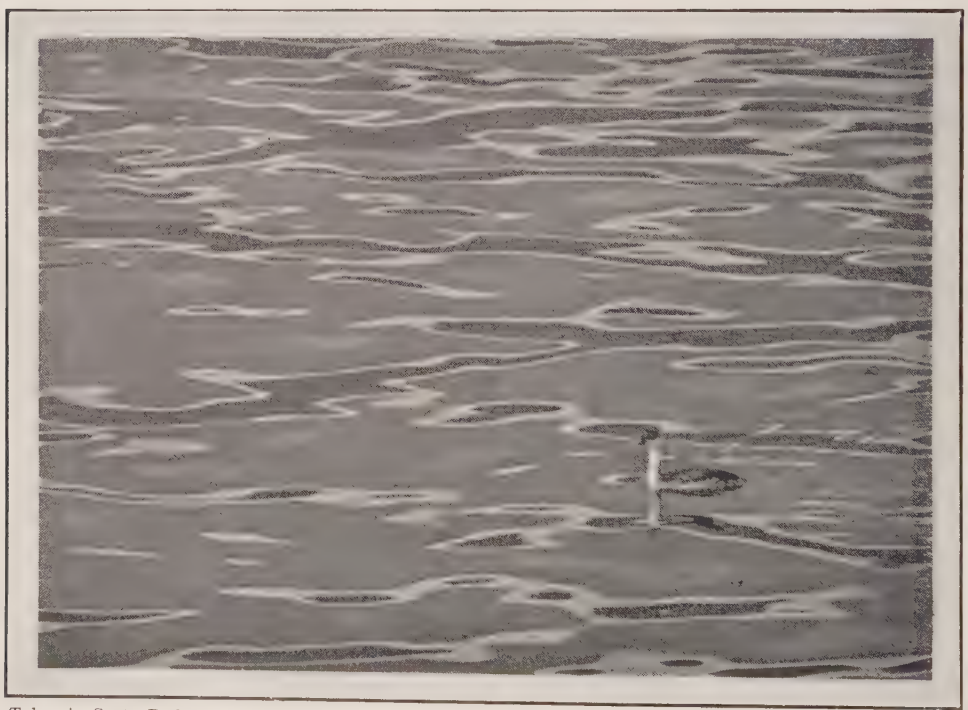
WHERE HE RECENTLY WAS

Like all others of the group, the young of the Western Grebe tumble out of the shell into the water, and the saturated mass of decayed vegetation which for a time held the eggs is never known as home. When the brood is hatched, the young birds clamber upon the mother's back, or the father's, as the case may be, and have a ride quite to their liking. Nothing more convenient than this floating palace could be devised; besides being a raft and a diving bell(e), it is fitted up with feather-stuffed cushions for repose, and upon it meals are served frequently,

a la Grebe,—since it is said that the mother can twist her neck around without difficulty and bestow a selected morsel upon whom she will of the expectant flock.

Western Grebes mate faithfully and spend much time in close and amicable association with their consorts. A proud sight is the male as he rows behind or beside his mate. One I saw arched his neck like a high-checked horse, with bill close in and pointing down; and he maintained this conscious attitude for a number of minutes. As he did so, the black of crown and neck, set off by the curving white core of the throat, made a perfect interrogation point.

A courting evolution sometimes witnessed deserves, whatever its immediate significance, the name of wedding march, for it is a stately affair, participated in, so far as one can judge, by both male and female. In this, the female leading, but probably under the instigation of the cock, they rise and tread the surface of the water, standing upright the while with outstretched or quivering wings and with necks beautifully arched, and they strike the water so vigorously with their feet as to quite maintain their elevated position, and to make slow progress forward. The birds



Taken in Santa Barbara *Photo by the Author*

WATERED SILK, WITH IRRUPTIVE FIGURE

en in Santa Barbara *Photo by the Author*

MORE MOIRE

are never less than three feet apart and there is no apparent difference in behavior or interest. When a dozen feet or so have been covered by this stately march, both collapse and plunge under water head first. This procession I have witnessed several times, and it was once participated in by three birds on equal terms.

These are rare glimpses. For the rest the Western Grebe is a voice, high and broken, like nothing else, perhaps, so much as the creak of a neglected pulley-block. *Krik, krik, krik, krik,* comes from off the shimmering waters of San Diego Bay, and you think of the pine-clad slopes and weedy recesses of Eagle Lake in Lassen County. *Krik, krik, krik, krik,* comes the weird cry from off the bosom of the lake, a little anxious now as you bend over the side of your canoe to count the eggs; and you pause a moment to recall Point Loma and the lemon-scented breezes of Ramona's land.

No account of the Western Grebe is complete without some reference to the Great Persecution endured by the race at the hands of the plume-hunters. At the behest of a cruel fashion, ever on the alert for novelty, the virgin fastnesses of the West were invaded in the early Nineties by as ruthless a band as ever scuttled ships or fired wigwams,—the grebe-hunters. The feathers of these birds, glistening white and water tight, made excellent muffs or stoles, or even capes, as warm as

ermine; and lorn was the maiden who boasted not even a bonnet snatched from the breast of a mother grebe. The hunters, to ease the pain of the lorn maiden, stood waist-deep in water behind screens of tules, and potted the divers as they rose, one by one; or else they clubbed together and "shot up" a colony at a time when anxiety for young made the birds less wary. In this manner literal tens of thousands of these innocent birds were slaughtered within the space of a decade in northern California and in Oregon; and those which remain to this day are a mere centesimal of the former hosts.

Yet those men were kind to their own children; were, indeed, good neighbors, in the narrower sense,—none readier to sit up with a sick friend. And you could more easily have borrowed money from one of them than from an average banker. What was the matter? Why, "sin" is largely social; and "society" had not yet evolved. Theodore, the Resolute, gave one twist to the evolutionary jack-screw when he decreed the Federal bird reservations; Weeks slipped a timber under in the Federal control of migratory birds; and McLean set the concrete base in the prohibition of the plumage traffic. A tally was checked on the tablets of fate. Birds are no longer shot for their plumage in or *for* America.

Taken in Siskiyou County *Photo by Finley and Bohlman*

TWINS OR WORSE

AT LEAST THEIR GODFATHER WILL NOT UNDERTAKE TO SAY WHETHER OR NOT THERE SHOULD HAVE BEEN MORE OF THESE BABY WESTERN GREBES.

No. 421

Holbœll's Grebe

A. O. U. No. 2. **Colymbus grisegena holbœlli** (Reinhardt).

Description.—*Adult in nuptial plumage:* Head and short dense occipital crest, heaviest on sides and squarely cut off behind; top of head, including crest, ridge of neck behind, and upperparts, very deep hair-brown, or brownish black with a silky sheen, pure on head and neck and wings, with slight edgings of dull buffy and ochraceous on back; primaries not different; a large white patch on central secondaries (recalling the speculum of ducks); throat and sides of head pale ashy gray, becoming white on borders; neck in front and on sides bright cinnamon-rufous, shading on fore-breast into the silvery ashy of remaining underparts; posterior feathers dusky-tinged; bill bluish dusky, varied by yellow on lower mandible; feet and legs black. *Adult in winter and immature:* Similar but duller; throat and sides of head pure white; the rufous of neck replaced by ashy-brown; not crested. Bill lighter; feet and legs (of immature) mottled with yellow. Length 457.2-508 (18.00-20.00); wing 195.6 (7.70); bill 48.3 (1.90); tarsus 63.5 (2.50).

Recognition Marks.—Something under Mallard size (owing to abbreviated tail), but appearing larger, nearer Brant size; rufous of neck, when present, distinctive; stouter, chunkier proportions; neck ashy in front (in winter), and shorter, heavier bill, as compared with Western Grebe.

Nesting.—Does not breed in California. *Nest:* A heap of half-submerged or floating vegetation in pond or reedy lake margin. *Eggs:* 2 to 5; dull greenish white, except when fresh heavily nest-stained. Av. size 53.7 x 34.5 [2.11 x 1.36] (Bent). Index 64.2. *Season:* c. May 20; one brood.

Range of *Colymbus grisegena.*—Northern and sub-Arctic portions of the Northern Hemisphere. Breeds north to southern Greenland, Europe, and Kamchatka; south in winter to northern Africa and Japan. In America as follows:

Range of *C. g. holbœlli.*—North America and northeastern Asia. Breeds from northern Ungava, northern Mackenzie, and northwestern Alaska, south to New Brunswick, central western Minnesota, northern Montana, and northern Washington; winters south, chiefly coastwise, from southern British Columbia to southern California, and from Maine to North Carolina, or even to Georgia. In the interior to southern Colorado and the Ohio Valley.

Distribution in California.—Not common winter resident and migrant, chiefly along the seacoast. Occasional at Santa Barbara, but not recorded from any of the Channel Islands. Interior record stations include Lake Tahoe (Belding), and Elsinore Lake (Nordhoff).

Authorities.—**Heermann** (*Podiceps cristatus*), Rep. Pac. R. R. Surv., vol. x., 1859, p. 76 (Santa Barbara); *Grinnell*, Pac. Coast Avifauna, no. 1, 1900, p. 4 (desc. breeding habits, nest and eggs; northern Alaska); *Beck*, Proc. Calif. Acad. Sci., ser. 4, vol. iii., 1910, p. 58 (Monterey); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 9 (occurrence in s. Calif.).

OUR CHIEF interest in this rare winter visitor must lie in its points of resemblance to and difference from our common species of diving birds. Is it a grebe or is it a loon? is the question we ask concerning the

nondescript object which the recurring swells bring into intermittent view just inside the kelp-line. For stoutness of bill and sturdiness of neck the bird is very loon-like, but its body lacks somehow the regal outlines of the clipper-built *Gavias*. It is squatty, lumpish, ill-defined, instead. Holboell's Grebe is a pleb. Compared with its cousin, the Western Grebe, this bird is notably shorter and stouter both as to bill and neck, and it does not present so fierce an appearance, even though still boasting the carmine eye. The neck, also, is never so pure a white in front, and it usually retains a dull rufous wash which further serves for distinction.

When you have decided that the *je ne sais quoi* may be a grebe, it prepares for diving by first giving a little upward spring, and then turns suddenly, with the body almost clear of the water, and shoots down, head foremost. *Holbœlli* is, however, quite as able as others of the family to flash out of sight without the spring-board motion, or else to fade away after the manner of the polite Frenchman. Once, upon a piece of inland water, I sighted one of these birds at not over thirty yards. Really desirous of securing a specimen for the cabinet, I shot, using duck shot and an extra rapid smokeless powder. The fellow was possessed—not only by "spirits," but by an inexhaustible fund of good nature, for every time I shot he vanished, I know not how, only to reappear instantly, unscathed and smiling, to paddle a little nearer.

No. 422

Horned Grebe

A. O. U. No. 3. **Colymbus auritus** Linnæus.

Description.—*Adult in nuptial plumage:* Forehead and crown, with throat and sides of head around on nape, sooty black, deepening and becoming glossy posteriorly; area included by these patches (lores and sides of crown) buffy ochraceous, changing to rufous on lores and the short dense occipital crest; neck in front and on sides and fore-breast rich cinnamon-rufous, shading on breast into the satiny white of belly; sides (well up under wing) and flank patches tinged with rufous and overlaid with some dusky; upperparts grayish black, becoming grayish brown on wings and varied by some edging of lighter grayish brown; primaries clear light brown; secondaries mostly white, forming a quasi speculum. Bill black with yellow on lower mandible and tip; feet dusky externally, internally mostly yellow. *Adult in winter and immature:* No rufous anywhere; above uniform grayish black; below, including sides of head, pure white, sometimes tinged on neck and fore-breast with ashy brown; sparingly dusky-shaded on sides; bill with less black. Length 317.5-381 (12.50-15.00); wing 130.4 (5.37); bill 23.6 (.93); depth at base 8.1 (.32); tarsus 46.2 (1.82).

Recognition Marks.—Teal size; breeding plumage with black and red on head (especially red lores) distinctive for size; slender bill; the pure white of throat and

Taken in North Dakota *Photo by Edwin Reiber*

HORNED GREBES AT HOME

sides of head contrasting with blackish above affords the best field mark in winter; in winter plumage not certainly distinguishable from the next species though averaging larger.

Nesting.—Does not breed in California. *Nest:* Of half-submerged or floating vegetation, usually anchored to reeds growing in swamp water. *Eggs:* 2 to 7; elongated oval, pale greenish white, but usually more or less discolored by nest. Av. size 44.5 x 30 (1.75 x 1.18). *Season:* June.

General Range.—Northern part of Northern Hemisphere; south in winter to the Mediterranean and Caspian seas and Japan. In America breeds from southern British Columbia, northern Utah, northern Nebraska, southern Ontario and northeastern Maine, north to the Lower Yukon Valley, northern Mackenzie, central Keewatin, and the Magdalen Islands. Winters from British Columbia, the Great Lakes, and Maine south to southern California, the Gulf Coast, and Florida.

Distribution in California.—Fairly common winter resident, chiefly along the seacoast northerly; less common southerly; casual upon the larger inland bodies of water; sometimes lingers well into spring.

Authorities.—**Cassin** (*Podiceps cornutus*), Proc. Acad. Nat. Sci. Phila., vol., xiv., 1862, p. 323 (Calif.); *Loomis*, Proc. Calif. Acad. Sci., ser. 2, vi., 1896, p. 14 (Monterey Bay, winter).

APPARENTLY nothing is more attractive to a school of herring (all little fish which attend school are herring for practical purposes)

than a maze of piles supporting a wharf. They crowd into the shadowy aisles and survey the retreating vistas with the dumb wonder of children at Karnak. A few nibble at the hieroglyphics traced by barnacles on the pillars, or tweak in mischief at the wan whiskers of the serried anemones. Suddenly a silver shudder thrills the school. A flash of white sides is followed by a dash for the depths, and there emerges from the tumult a gray apparition which resolves itself into a panting bird. An instant gleam as of fins near the bird's beak tells you that another fish has gone to Grebe; but just how you cannot tell, for it was all so sudden. The diver pauses a moment to consider the danger of the kindly eyes that stare down at him, recalls that art is long and fish are fleeting, and is off again hot-foot to urge the merry chase under water.

They are innocent, happy little souls, these Hornies, and one is tempted to look upon them as children, especially if he is used to the grown-up Westerns. Once I stole upon a little company at early morn, as they rested after a long migration flight. Six of the dainty creatures were dancing before me on the gently ruffled surface of the water-works pond. They saw the bird-watcher plainly enough some thirty feet away, but accepted him as a part of bountiful nature and gave themselves to slumber. In sleeping they draw the head back and settle it between the shoulders, thrusting the bill down, precisely, to the right. Now and then one lifts its head and describes a wary circle of reconnaissance, but is soon reassured and resumes its slumbers. While taking these cat-naps in my presence, they swim and whirl automatically and maintain their general position, as though gifted with double consciousness. There are five males in the company, with one female, and the white of their breasts and throats glistens purely in the morning sun, for it is autumn; and I steal away with a sense of privilege, as though I had seen fairies caught out of bounds.

In the springtime one may inspect the wedding garments from no more romantic a position than the wharf again, before the northern bridal tour is undertaken. At such a time one rubs his eyes to see the transformation wrought upon our modest gray friends of autumn. Tawny, chestnut, chocolate, wine-red and shiny black are now in evidence, and the extraordinary ruff, or aureole, which surrounds the head, detracts materially from the solemnity of the occasion.

Birds of this species take to wing readily with or without provocation, and although they have the grebe habit of thrusting the legs out straight behind, they are not ungraceful flyers. The wing movement is quite rapid and the white wing-patches appear prominently in flight.

Owing to the exceeding difficulty of distinguishing in winter between "Horned" Grebes and "Eared" Grebes, it is impossible to pronounce

upon the relative abundance of the two species. It seems probable, however, that *auritus* is more abundant coastwise, while *nigricollis* keeps largely to quieter waters,—lagoons and lakes. Horned Grebes are not, strictly speaking, gregarious; they are, indeed, most likely to be seen singly or in pairs; but good feeding grounds are not shunned for fear of collisions; and one sometimes sees a score or more feeding over a space of two or three acres when the tide is coming in. It is on such semi-sociable occasions that they raise a curious, far-sounding note of complaint, *keogh keogh*, with a nasal twang; or more sharply, *keark keark;* or even *yark yark*.

No. 423

American Eared Grebe

A. O. U. No. 4. **Colymbus nigricollis californicus** (Heermann).

Description.—*Adult in breeding plumage:* A broad fan-shaped patch of lengthened feathers on side of head, chiefly behind eye, rich straw-yellow to golden brown; remainder of head and neck (including prominent crest) and chest, jet black; upperparts blackish, sometimes washed on upper back with rufous; primaries chocolate-brown, washed with duller brownish; secondaries chiefly white; sides broadly rich rufous or wine-red—this color (in highest plumage) washed across breast below black and across crissum, and so surrounding silky grayish white of lower breast and belly. Bill black; feet dull olive, blackening on soles; eyes flaming scarlet, their lids orange. *Adult in winter:* Upperparts, neck all around, and sides grayish dusky, blackening on top of head and on back; no rufous; no unusual feathers or crests on head: throat and cheeks white; thus an obscurely-colored dusky-and-white bird, difficult to distinguish superficially from the Horned Grebe, *C. auritus*, in winter. Length 304.8-355.6 (12.00-14.00); wing about 127 (5.00); bill 25.4 (1.00); depth at nostril 5.6 (.22); width 6.6 (.26); tarsus 40.6 (1.60).

Recognition Marks.—Teal size; single black crest and fan-shaped yellow auricular patches distinctive in breeding plumage. In winter plumage very difficult to distinguish from the Horned Grebe—however, note size, averaging smaller; somewhat darker colored upperparts; more distinct wash of dusky on fore-neck; less trace of special feathering on head; bill of different proportions, somewhat flattened at base.

Nesting.—Nests in colonies. *Nest:* A floating raft of rootlets, moss, and light water-plants, moored in the deeper water at edge of swamp. *Eggs:* 3 to 8; light bluish green, rapidly fading and becoming nest-stained. Av. size 43.5 x 30 [1.71 x 1.18] (Bent); index 68.9. *Season:* c. June 1; one brood. Escondido, one record, Apr. 22, 1906, 7 eggs (Sharp). Nigger Slough, Los Angeles Co., 15 pairs, eggs, July 8, 1911 (H. J. Lelande). Bear Lake, June 22, 1907, eggs (Willett). San Jacinto Lake, June 8, 1897, 50 pairs (Ingersoll and Judson). Los Banos, June 3, 1914, one pair, 3 eggs (Dawson). Lake Tahoe, June 29, 1902, 4 eggs (Ray). Mono Lake, abundant.

Range of *Colymbus nigricollis.*—Temperate portions of Eurasia and North America, south in winter to Africa, India, and China, and in America to Guatemala.

Range of *C. n. californicus.*—Western North America. Breeds from south central British Columbia, Great Slave Lake, and central Manitoba, south to southern

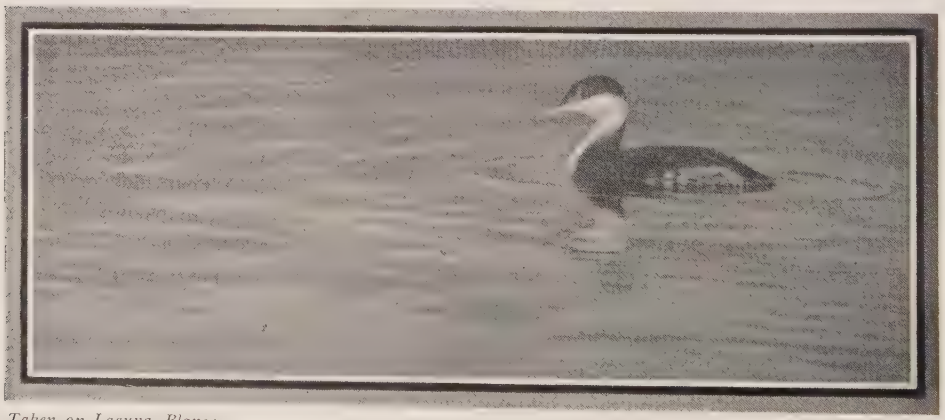
Texas, northern New Mexico, northern Arizona, and southern California. Winters chiefly west of the Rocky Mountains from Washington to Texas, Guatemala, and southern Lower California.

Distribution in California.—Breeds abundantly on Mono Lake, and commonly east and north of the Sierras at various stations. Also casually or in small numbers throughout the central valley and at Elizabeth Lake, Bear Lake, San Jacinto Lake, and formerly near Escondido. Winters commonly on lakes and reservoirs or estuaries and bays, less commonly along the water front.

Authorities.—Heermann (*Podiceps californicus*), Proc. Acad. Nat. Sci. Phila., vol. vii., 1854, p. 179 (orig. desc.; Calif.); *Grinnell*, Univ. Calif. Pub. Zool., vol. v., 1908, p. 51 (desc. breeding colony on Bear Lake, San Bernardino Mts.).

CHRISTENED *californicus* by Heermann, who first distinguished the American Eared Grebe from that of the Old World, the species finds, nevertheless, its center of distribution much further north. If the following paragraph retains, therefore, a certain northern flavor, it may claim authenticity in the face of meager California notes.

It has been a blazing day, for June, even in the Big Bend country (in Washington), but now the sun has sunk behind the Cascades and the earth has already begun to exhale the fresh odors of recovering darkness. The modest chores of camp-life are done, kindling split for morning and laid away under the flap of the tent, a fresh covering of rye grass cut to cushion the bumps in the ground which gradually revealed themselves in last night's slumbers; and now we may lounge by the brink of the lake, flip pebbles at its unruffled face, or resign ourselves to the peace of nightfall. Most birds have properly tucked head under wing, and even the Nighthawks are less feverish in their exertions; but not so with the Eared Grebes. It is the magic hour of courtship, and near and far from



Taken on Laguna Blanca *Photo by the Author*

EARED GREBE IN WINTER GARB

Taken in Siskiyou County *Photo by William L. Finley and Herman T. Bohlman*

PORTRAIT OF EARED GREBE

the open water or its weedy margins sounds the mellow *poo-eep poo-eep* of these idyllic swains. The sound is given deliberately with a gently rising inflection, but seems to vanish into silence at the end with a sort of saber-like flourish. Now and again some Romeo, more ardent than his mates, bursts into an excited *hicko rick'up, hicko rick'up, hicko rick'up.* The birds spread freely all over the lake, irrespective of their nesting haunts, and so numerous are they that at times they maintain a chorus of the volume and persistency of that furnished by a first-class frog-pond in March.

How handsome these creatures really are we shall see by the morning light, when a pair of them, accepted lovers, come into our cove in quest of provender. There is no partiality shown by Nature to either sex in the way of wedding garments. The upperparts and head are of shining black, save for the fan-shaped patches on the sides of the face, which are whitish or straw-yellow above and rufescent below, while the sides of the bird, so prominent in a grebe, are pure rufous. The eye is fiery red, so bright as to appear to impart a glow to the face, visible to the naked eye at forty paces.

Courtship often makes its victims reckless, but the bird recovers caution as it ventures south to winter. Three of these saucy little

divers were observed from a blind on Laguna Blanca, near Santa Barbara. They "had their suspicions," so that although the excitement of the submarine fishing led them often towards shore, each bird faced away promptly after its emergence. As it pulled away with strong stroke, it also spread out its rear plumage (it is hardly proper to speak of a grebe's *tail*) in a conspicuous fan-shaped fluff. Whether this movement was intended as a menace or a sign of derision levelled at the suspected stranger, or whether it was only a "banner mark" for the guidance of its comrades, I could not tell. If I could have been real sure—but then I had no gun. A hundred feet seemed about the proper limit, at which point the bird would stop, thumbing its nose *en arriere*, and would reconsider the question of diving. In going below individuals differed markedly both in method and vigor. All leaped into the air, indeed, but one of them merely turned over in his tracks, while another, more active, cleared a horizontal space of untouched water more than a foot in width each time he dived.

Some confusion still exists between the nesting of this bird and that of the Pied-billed Grebe. The fact is, the Eared Grebe is *either* solitary *or* gregarious at nesting time. It nests also from sea-level to the highest altitudes which afford sufficient cover of water-plants.

Taken in Merced County A COVERED NEST *Photo by the Author*

Taken in Mono County *Photo by the Author*

EARED GREBES ON MONO LAKE

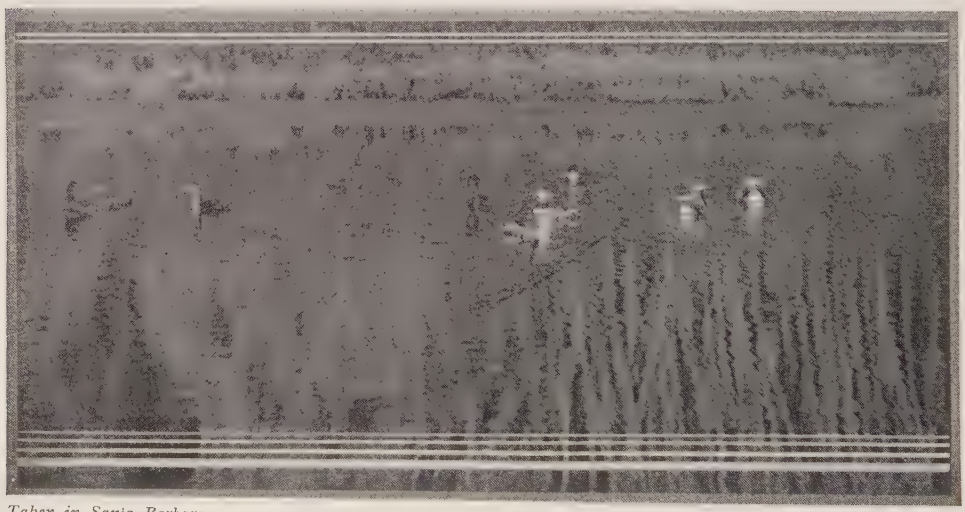
Taken on Big Bear Lake *Photo by Wright M. Pierce*

A NESTING COLONY IN SUBMERGED PINE

2055

Colonial nesting is more characteristic, and identification under such circumstances is easy. I have touched a dozen nests with an ordinary two-bladed paddle while my canoe was at rest. On the other hand, solitary nests may occur almost anywhere, even miles from conspecific neighbors. The eggs of the two species are absolutely indistinguishable in size and color, but the Eared Grebe is a little less prolific. Four or five eggs usually constitute a set, as against the seven or eight of *P. podiceps*. Nests are usually placed in open water, and are oftener floating islands than solid pyramids of decaying vegetation. The materials used are fresher, consisting of the uptorn roots of sedges and the stems of various water-plants, especially those of the Yellow Water-weed (*Jussiæa californica*). This floating platform is shallow, scarcely indented, and not sufficiently elevated to lift the eggs altogether clear of the water. Incubation is by sufferance of several kindly fates: a sun warm, but not too hot; water not too cold and not too rough; and, above all, absence of those skulking terrors, muskrats and raccoons.

In all this a dozen points of contrast and difference from *P. podiceps* arise; and yet the author is willing to wager a choice set of supposed Eared Grebe eggs, that the first grebe's nest you find in water, say, three feet deep, will stump you for identification.



Taken in Santa Barbara *Photo by the Author*

FRATERNIZATION

PIED-BILLS TO LEFT, EAREDS TO RIGHT.

No. 424

Pied-billed Grebe

A. O. U. No. 6. **Podilymbus podiceps** (Linnæus).

Synonyms.—Water-witch. Hell-diver. Dabchick. Diedapper. Dipper. Blind Rail.

Description.—*Adult in nuptial plumage:* Chin and throat glossy black; top of head and neck black with an admixture of brownish in hair-lines and streaks; the forehead with many shortened, webless, glossy, black shafts; sides of head gray, passing into grayish-brown on sides and front of neck; lower neck and breast and sides mostly blackish, heavily tipped in parted hair-lines with fulvous and ochraceous; underparts silky grayish-white mottled with underlying dusky, and heavily shaded on sides and behind; above clear brownish-black; secondaries varied and mottled with some white. Bill short and stout, bluish-white, crossed at the nostril by a heavy black band; feet greenish-black. A *prenuptial phase*, in which the black of throat is more or less overlaid with white (unabraded tips of feathers) is more frequently seen. *Adult in winter:* Without black on head; crown dark brown shading on sides of head to whitish of throat; neck, fore-breast, and sides strongly tinged with brownish ochraceous; belly dingy white, unmottled; bill without black band. *Immature:* Like adult in winter, but sides of head with more or less distinct stripes of brown. *Downy young:* Plumage chiefly black and dull white in lengthwise stripes, ten of each; belly broadly white; head roughly and broadly cross-banded with chestnut and black; superciliaries five-striped black-and-white, converging on forehead; bare lores and eyelids reddish; bill reddish at base, paler medially, variously touched with black distally, and sharply white-tipped; feet blackish. Length 304.8-381 (12.00-15.00); wing 129.5 (5.10); bill 20.3 (.80); along gape 31.8 (1.25); depth at nostril 10.9 (.43); tarsus 39.4 (1.55).

Recognition Marks.—Teal size; bill short and stout, its black band distinctive during breeding season, its shape sufficiently so at other times; head and neck brownish with dull whitish throat in winter plumage.

Nesting.—*Nest:* A floating or half-submerged mound of decayed vegetation in open space of swamp water. *Eggs:* 4-8, 10 of record; dull white or pale greenish buff, usually more or less discolored by contact with wâter-soaked nest. Av. size 43.4 x 30 [1.71 x 1.18] (Bent). Index 68.9. *Season:* May; one brood.

General Range.—North and South America. Breeds locally from the southern Canadian provinces south to Chile and Argentina. Winters on the Atlantic Coast from New Jersey, on the Pacific Coast from Vancouver Island, and from the Gulf States, southward.

Distribution in California.—Fairly common summer resident and breeder at suitable localities throughout the State. Winters sparingly in the San Joaquin-Sacramento Valley, and on Tomales and San Francisco bays; more commonly in the San Diegan district. Well distributed as a migrant, invading even the smallest ponds and ditches.

Authorities.—**Heermann** (*Podylymbus lineatus*), Proc. Acad. Nat. Sci. Phila., vol. vii., 1854, p. 179 (young of *Podilymbus podiceps* described as new subspecies); *Willett*, Pac. Coast Avifauna, no. 7, 1912, p. 9 (occurrence in s. Calif.; breeding dates,

etc.); *Ray*, Condor, vol. xviii., 1916, p. 222 (San Francisco County, breeding); *Bent*, U. S. Nat. Mus., Bull. no. 107, 1919, p. 39, pls. (life hist.); *G. Bancroft*, Condor, vol. xxii., 1920, p. 206 (San Joaquin Valley; nesting habits); *Forbush*, Massachusetts Dept. Agric., Bull. no. 8, 1922, p. 6 (under-water progression).

TAKE a double handful of 'dobe soil, moisten it with brown swamp water, add a fistful of macerated weed-stems, by way of binder, mould into a shape somewhere between a clod and a crow, drench it with eels' liver oil, and set it carefully on the surface of some weedy pond. It will disappear instanter, and the swamp will be peopled forever after by a race of amphibious Pinkertons. You will never again set foot in those oozy shallows, intent upon nothing more harmful than your annual inspection of blackbirds' nests, without an uneasy consciousness of surveillance. You are being shadowed from clump to clump among the innocently waving cat-tails. "The Hessians are coming." Some miscreant is spreading a false alarm, and be your advance never so stealthy to the very market-place of Reedburg, you find only empty streets, or catch at best a glimpse of disappearing skirts.

If you spot the spy, up on reconnaissance, he sits the water motionless and furtive, the very image of arrogant humility, Uriah Heep in feathers. The Dab deprecates your glance with an irritating unctuousness which somehow makes you resolve to deserve forthwith all the nameless charges of which you stand accused. Guilty! And proud of it, Caliban! Bing!

The trouble began when we were boys. We had been entrusted with our first gun, a re-bored army carbine, and we were intent on slaughter. We saw a duck on a pond and we tremulously pulled trigger. The landscape was suddenly blotted out, and, when we returned to consciousness there was no duck in sight, nor shattered remains, nor feathers. What did it mean! We knew we had not missed. Nothing could have withstood that blinding assault and at such close range. So we returned, bruised in spirit, and the neighbor boys told us with great glee that we had shot *at* (mark the preposition) a "hell-diver." We are not profane, but we draw a fierce satisfaction from the appellation, and we cherish our wrath against a creature which is so inconsiderate as to avoid the flash of a gun at twenty yards.

More recently we have been trying to study the Grebe's nesting habits, and have made overtures, sometimes friendly, sometimes frantic; but still the wily water-witch cultivates retiracy and will not be limed or limned, save as a paludicoline pest whose specialty is alibis.

One thing is certain, the *nest* of the Pied-billed Grebe may be found. In a retired spot in a depth of water varying from six inches to as many feet, a large mound of sodden vegetable matter and mud is erected, and

with a hemispherical finish brought to an elevation of from two to six inches above water. If in shallow water, the mound is comparatively solid, and mud is largely used. If in deep water, mud may be almost

Taken in Santa Barbara *Photo by the Author*

BE 'UMBLE, URIAH, BE 'UMBLE

eliminated, and the mass, thus rendered light enough to float, gives with the waves as it swings upon concealed moorings of aquatic plants.

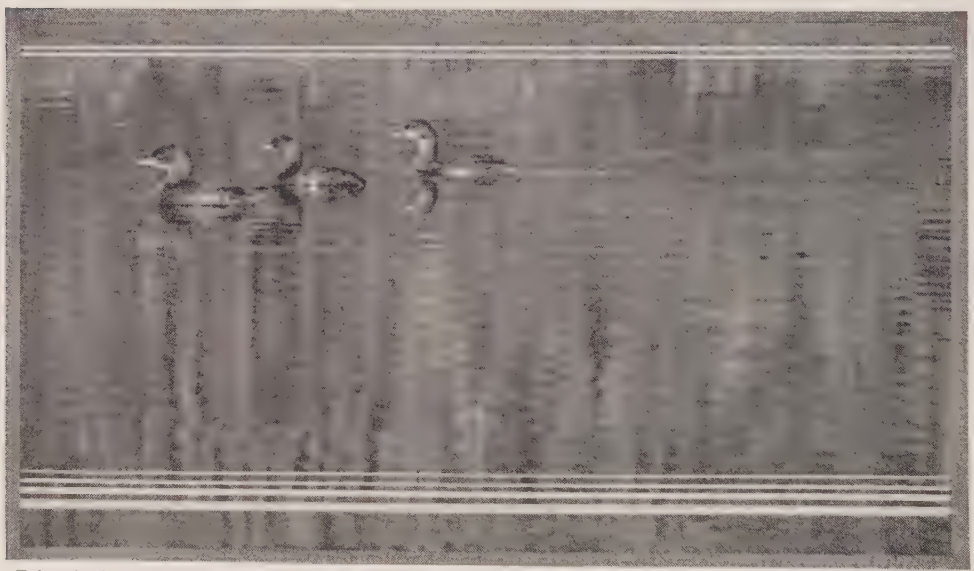
Here in a slight depression of the top, seven or eight eggs are deposited at the rate of one a day; and incubation requires three weeks or a little over. The parents brood the eggs at night and in chilly weather, but on bright days the eggs are carefully covered with mud and close-set mosses, spirogyra and the like, and the whole smoothed over to the appearance of an emerging mud-bank. The wet blanket, so painstakingly provided, serves the triple purpose of screening the eggs from hostile observation, of protecting them from the too violent rays of the sun, and of equalizing the heat so received. Indeed, it is altogether possible that the heat generated by the decay of the vegetation itself plays an important part in incubation.

That one does not see the mother is no sign that she is not anxious;

and if you tarry too long, the swamp will become vocal with strange gurglings and weird cries of incantation. Most memorable is an odd bubbling giggle, *keggy keggy keggy keggy keggy keggy keggy*, etc., rendered with great rapidity.

If one happens upon a nest at the critical hour of hatching, the distraught parent enters upon an entirely different behavior cycle. Renouncing all prudence, she rushes up within a dozen feet or less. First, sitting bolt upright upon the surface of the water, she flashes the white areas of the flank-patches. Then she flounders over the surface of the water, beating it with her wings and splashing spray in a fashion to compel attention. Anon she dives ostentatiously, passing and repassing in plain view beneath the surface. Upon emergence groans or shrieks are emitted, and the distraught lure tactics recommence.

Parental love is almost unfailing, but it is a marvel that the Grebe mother knows her own. The chicks are evidently not fashioned after the frivolous method suggested at the beginning of this article. Baby



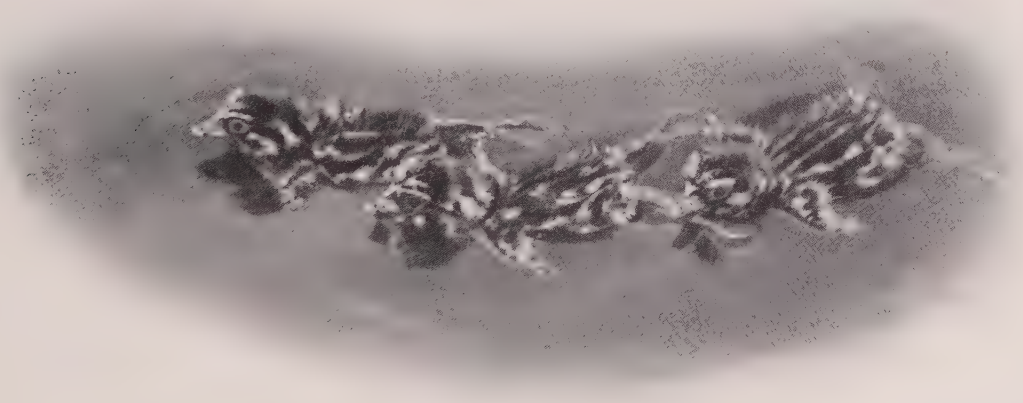
Taken in Santa Barbara *Photo by the Author*

BOLTING THE PARTY

Grebes, at least Pied-bills, are among the most astonishing of mortalities. If nature had studiously devised the utmost difference between parent and child, she could not have succeeded better. Instead of a dun-colored lump, we have a handsome pattern of black and white in length-wise stripes—like a skunk, one cannot refrain from saying, especially

now that "milady" has consented to hug this odious creature to her heart in the shape of muff or stole. The pattern is further set off by touches of chestnut on the head, and with higher reds on eyelids and bill. These little studies in black-and-white are, moreover, eloquent of ancestral beauty, now rehearsed alone in the brief hour of childhood. Whatever did Uriah do to forfeit such ancient grandeur?

The babies are as cute as they are striking in appearance, and the fortunate captor cannot resist the appeal of play with such dainty toys at hand. At first, escape by diving is their only thought, but they are too light in weight to stay under long. Some try hiding, and lie motionless behind a water-weed, with only the tip of the bill and nostrils emerging. Best of all, is to see them paddling about on the surface of the water, which is no hardship, and especially to see them linking up chain-fashion in the vain endeavor to use the other fellow as a "surf-board." This instinct to climb up on something is explained when the mother bird appears on the scene. If you will retire discreetly, she will call her chicks by clear, resonant notes, tender and anxious, *peek poolk*. Scurrying over the water to meet her, the chicks scramble instantly upon the mother's back where they are both secreted and held in place by the inner edges of the partially uplifted wings. With her brood so disposed, the mother grebe (with all her sins forgiven now) prefers to ride high upon the surface of the water. But she will dive with her burden if need be, and the babies thus traverse very considerable distances in the "only original" submersible.



Taken in Merced County *Photo by the Author*

A NEW GENERATION

YET THE DRESS OF THESE ARTLESS BABIES IS ELOQUENT OF BYGONE DAYS, A MILLE-MILLENNIUM OF PHYLOGENETIC HISTORY REHEARSED IN A FORTNIGHT

Sometimes, instead of diving as quick as a flash, the bird, if it thinks itself unobserved and wishes to escape, will settle down into the water and disappear like a perforated tin can, without leaving a ripple behind. Once under water, the diver makes marvelous progress, apparently without assistance from the wings. And if it is undesirable to appear on exhibition again, the bird requires only to thrust the tip of the bill as far as the nostrils above the water from time to time. Thinking to test their powers both of diving and flight, the author once pursued a company of twenty-five Pied-bills about a two-acre opening in the ice of an eastern lake. The birds would neither fly nor try to escape beneath the surrounding ice, preferring rather to play hide and seek with the man in the boat. Some came to the surface and got a single gulp of air, while others fearlessly presented a broadside view, and others still paddled about with only the head sticking out of water. They are said, however, to take wing easily and to fly rapidly. On land they are unable to rise, and they flounder about, therefore, quite helplessly.

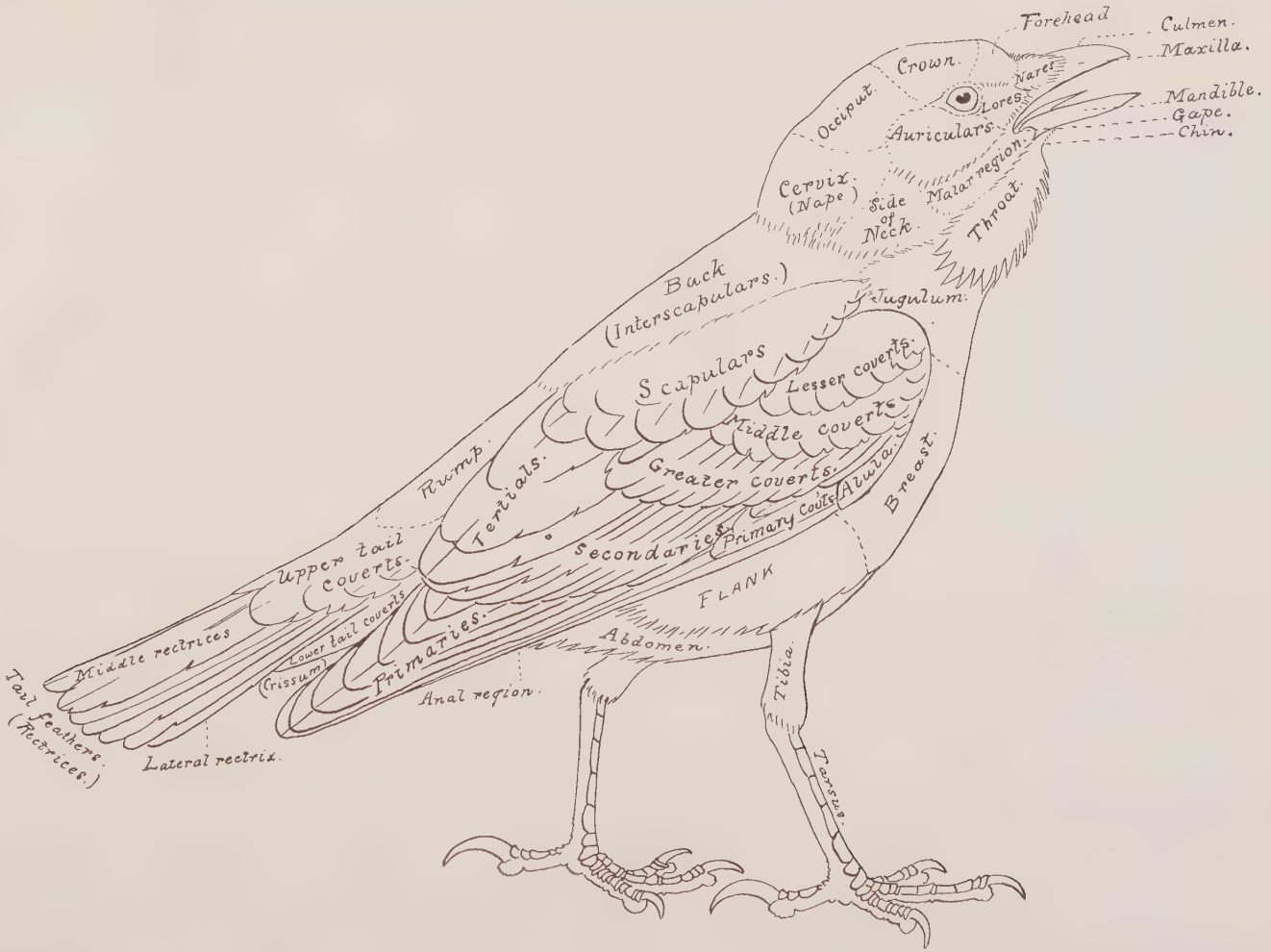
From Raven to Grebe is a far cry, and we have run the gamut of interest in the Living Bird: but who shall say whether is greater, Grebe or Raven, in the Father's sight? or who shall resolve us these mysteries which we have here but dimly outlined? Who shall tell us whether these be indeed our brethren, to whom we owe some sort of fealty, or only clods a little more animated? For ourselves we dare to believe that we are a part of deity, the Creative Infinite made flesh and become self-conscious—ageless, timeless, imperishable, on-going. But who are you, O Birds? toys for our idle hour? toys which we may cast aside, broken perhaps, with none to chide us? Or are you—are *you*, perchance, fellow gods? Perhaps—oh, just perhaps—we shall meet again in that realm which is beyond appraisal—the Realm of Understanding.

Taken in Santa Barbara

TOO LATE TO CLASSIFY

Photo by the Author

Analytical Keys



Drawn by Allan Brooks

TOPOGRAPHY OF A BIRD

Outline drawing of a Raven, showing position of parts and plumage areas most frequently referred to in the text.

Analytical Keys

For the ready identification of birds of California.

Foreword

The following pages present a rough abstract of the structural characters and relationships of the birds of California. Our purpose here being a purely practical one, viz., to establish identity, we have sometimes seized upon the most trifling or superficial characters, provided only that these are conspicuous or decisive. No attempt has been made to give a complete account either of structural characters or of systematic divisions; and no mention has been made of several natural but subordinate groupings, such as super-orders, sub-orders, and sub-families. Consideration of even generic distinctions has been sacrificed in the interests of simplicity.

The irreducible minimum of systematic apparatus would appear to involve the recognition of Orders, Families, and Species. The Keys are, accordingly, based upon these threefold distinctions.

Of course the accurate use of any key must depend upon a bird or bird-skins at hand. But because many of the readers of this work may not have convenient access to labelled specimens, or may not care to kill birds for temporary needs, we have used as far as possible field characters, or "recognition marks," through which even the most superficial glimpse of a bird may lead hopefully to recognition.

Lastly, the writer disclaims any assumption of authority in the realm of taxonomy. He has only interpreted, somewhat hastily, the labors of others, and is frankly beholden to such outstanding authorities as Ridgway and Coues, as well as to Dr. Lynds Jones, who kindly prepared the keys for the author's earlier works, "The Birds of Ohio" and "The Birds of Washington."

How to use the Keys

With a bird in hand which we wish to identify, say, a Sora Rail (*Porzana carolina*), we inquire, first, what order it belongs to. Turning to page 2069, "Key to the Californian Orders," we read: "I. Feet with webs or lobes." Our bird has simple, or naked, toes, so we pass to "II. Feet with neither webs nor lobes"—which fits our case. Here "A. Legs and neck lengthened" does not apply; but "B. Legs and neck not decidedly lengthened" does apply. Under B. "1. Feet relatively larger; toes long and slender" fits exactly. Our bird belongs to Order No. 14, the *Ralliformes*. We turn then to the "Key to the Families," beginning on page 2070. Under "Order 14, *Ralliformes*, Rails, Crakes," etc., page 2073, we read a brief description of the birds of this group and learn that the Order *Ralliformes* has only one family, the *Rallidæ*. We pass then to the "Key to the Species," beginning on page 2075. Here, also under Order 14, *Ralliformes* (p. 2089), we find an analysis of the Californian species of the family *Rallidæ*. Our bird falls under "I. Toes simple; body compressed; no frontal shield"; but not under "A. Length about 15 inches." We pass to "B. Length above 8 inches." Our bird, measured along the back from the tip of the bill to the end of the tail measures 8.50 inches; while its bill, measured (preferably by calipers, or "dividers") from the tip to the feathers at the base of the upper mandible (chord of culmen) is only .75 inches – "2. Bill decidedly less than one inch long." Our bird is No. 306, *Sora Rail*.

Guided by the figures on the shelf-back of the volumes, we turn to Volume III, or else refer to the Index, and read on page 1540 a detailed description of the Sora Rail, *Porzana carolina*, and receive abundant confirmation of our analysis. Here, for the sake of practice, perhaps, we will wish to check up, point by point, upon the color characters, and to measure, preferably by calipers, the distance from the bend of the wing to the tip of the primaries; also the tarsus from the heel joint (the sharp point of the calipers will find a little hollow between the bones of tibia and tarsus) and the angle formed by the outer (4th) toe. The length of the tail may likewise be determined by setting the calipers snugly into the base, or point of insertion, of the central rectrices. These four characters of bill-length, tarsus-length, wing- and tail-length, are notably constant within the species, but due allowance must be made for molting and wear of feathers, as well as for individual variation.

Roster of Orders of Living Birds

Orders represented in California are indicated by Arabic numerals and bold-face type.

			Distribution.
I.	RHEIFORMES	Rheas.	Brazil to Patagonia.
II.	STRUTHIONES	Ostriches.	Arabia and Africa.
III.	CASUARIIFORMES	Cassowaries, Emus.	Australia and the southern East Indies
IV.	APTERYGES	Kiwis.	New Zealand.
V.	SPHENISCIFORMES	Penguins.	Antarctic and South Temperate oceans and shores north to southern Africa and the Galapagos Islands.
VI.	22 **Podicipedes.**	Grebes.	Cosmopolitan.
VII.	21 **Gaviæ**	Loons.	Holarctic (Northern Hemisphere).
VIII.	20 **Procellariiformes**	Petrels.	Cosmopolitan pelagic, but chiefly South Temperate oceans.
IX.	19 **Steganopodes.**	Shags, Pelicans, etc.	Cosmopolitan.
X.	18 **Herodiones.**	Herons.	Cosmopolitan.
XI.	PHŒNICOPTERIFORMES	Flamingoes.	Southern Europe, central and western Asia, Africa, South America, and southern North America.
XII.	17 **Anseres.**	Ducks, Geese and Swans.	Cosmopolitan.
XIII.	PALAMEDEIFORMES	Screamers.	South America.
XIV.	16 **Falconiformes.**	Hawks, Eagles, etc.	Cosmopolitan.
XV.	CRYPTURIFORMES	Tinamous.	South and Central America.
XVI.	OPISTHOCOMIFORMES	Hoatzins.	Tropical South America.
XVII.	MESŒNATES	Kagus.	Madagascar.
XVIII.	MEGAPODES	Megapodes.	The Indo-Australian region.
XIX.	15 **Galliformes.**	Fowls.	Cosmopolitan.
XX.	14 **Ralliformes.**	Rails.	Cosmopolitan.
XXI.	13 **Grues.**	Cranes.	Cosmopolitan.
XXII.	OTIDES	Bustards.	The Old World, including Australia.
XXIII.	12 **Alciformes.**	Auks.	Holarctic pelagic south to Mexico.
XXIV.	11 **Lariformes.**	Gulls.	Cosmopolitan.
XXV.	10 **Charadriiformes.**	Shore-birds.	Cosmopolitan.
XXVI.	TURNICES	Button Quails.	The Indo-Australian region, southern Asia, Africa, and extreme southern Europe.
XXVII.	PTEROCLIDES.	Sand-grouse.	Eurasia, chiefly centrally, and Africa.
XXVIII.	9 **Columbiformes.**	Pigeons.	Cosmopolitan, including Oceanica.
XXIX.	8 **Coccyges.**	Cuckoos.	Cosmopolitan.
XXX.	PSITTACIFORMES.	Parrots.	Tropico-cosmopolitan and South Temperate (also barely North Temperate), notably in Indo-Australian region.
XXXI.	7 **Striges.**	Owls.	Cosmopolitan.
XXXII.	6 **Caprimulgiformes.**	Nighthawks.	Cosmopolitan.
XXXIII.	5 **Coraciiformes.**	Roller-like birds.	Cosmopolitan.
XXXIV.	COLIIFORMES.	Colies.	Africa.
XXXV.	TROGONES.	Trogons.	Central and South America, Africa, southern Asia and the East Indies broadly.
XXXVI.	4 **Piciformes.**	Woodpecker-like birds.	Cosmopolitan.
XXXVII.	3 **Cypseliformes.**	Swifts.	Cosmopolitan.
XXXVIII.	2 **Trochiliformes.**	Hummers.	New World, chiefly tropical.
XXXIX.	MENURIFORMES.	Lyre-birds.	Australia.
XL.	1 **Passeriformes.**	Sparrow-like birds.	Cosmopolitan.

Key to the Californian Orders

I. Feet with webs or lobes.	
A. Feet with webs.	
1. Webs extending to the base of the toe-nails.	
a. Legs set back near tail; tail shortened.	
(1). Toes, 4.	**21.** GAVIÆ.
(2). Toes, 3	**12.** ALCIFORMES.
b. Legs normally placed; tail normal.	
(1). Totipalmate, all 4 toes connected by web.	**19.** STEGANOPODES.
(2). Hind toes when present not connected to others by web.	
(a). Nostrils opening through tubes.	**20.** PROCELLARIIFORMES.
(b). Nostrils not opening through tubes.	
(a^1). Bill with tooth-like projections along its sides.	**17.** ANSERES.
(b^1). Bill without tooth-like projections	**11.** LARIFORMES.
B. Feet with lobes on sides of toes.	
1. Legs set far back; tail rudimentary	**22.** PODICIPEDES.
2. Legs normally placed; tail well developed.	
a. Forehead with a bare shield.	**14.** RALLIFORMES (Part).
b. Forehead normal.	**10.** CHARADRIIFORMES (Part).
II. Feet with neither webs nor lobes.	
A. Legs and neck lengthened.	
1. Lores bare.	**18.** HERODIONES.
2. Lores not bare.	
a. Toes, 4.	**13.** GRUFS.
b. Toes, 3.	**10.** CHARADRIIFORMES (Part).
B. Legs and neck not decidedly lengthened.	
1. Feet relatively large; toes long and slender.	**14.** RALLIFORMES (Part).
2. Feet and toes moderate.	
a. Lower part of tibia bare.	**10.** CHARADRIIFORMES (Part).
b. Lower part of tibia feathered.	
(1). Hind toe short, elevated above front ones.	**15.** GALLIFORMES.
(2). Hind toe, when present, on same level as front ones.	
(a). Nostrils opening beneath a soft fleshy membrane.	**9.** COLUMBIFORMES.
(b). Bill without soft fleshy membrane.	
(a^1). Bill with basal cere.	
(a^2). Eyes directed forward, surrounded by radial disc of specially modified feathers.	**7.** STRIGES.
(b^2). Eyes normally placed on face.	**16.** FALCONIFORMES.
(b^1). Bill without basal cere.	
(a^2). 2 toes in front and 2 behind, or 2 in front and 1 behind.	
(a^3). The outer toe (4th) merely reversible.	**4.** PICIFORMES.
(b^3). Outer toe permanently reversed.	**8.** COCCYGES.
(b^2). 3 toes in front, 1 behind.	
(a^3). Middle and outer (4th) toes joined for half their length.	**5.** CORACIIFORMES.
(b^3) Middle and outer toes not joined or else on middle of basal phalanx only.	
(a^4). Bill and feet weak.	
(a^5). Hind toe versatile, coloration simple, plumage compact.	**3.** CYPSELIFORMES.
(b^5). Hind toe fixed; pattern of coloration intricate, plumage soft.	**6.** CAPRIMULGIFORMES.
(b^4). Bill elongated and very slender.	**2.** TROCHILIFORMES.
(c^4). Characters various but not combined as above.	**1.** PASSERIFORMES.

Key to the Families

Order 1. PASSERIFORMES. Sparrow-like Birds.

Birds having feet adapted to perching, with first toe (hallux, or thumb) well developed, irreversible, and definitely opposed to the remaining three, which are likewise irreversible; primaries 9 or 10, secondaries more than 6; rectrices 12 (or, rarely, 10); bill various as to shape but always horny throughout, never provided with cere or deciduous parts or other seasonal modifications. Pygmy to raven size. Eggs 1-12, usually 3-5, exhibiting the widest range of color and markings.

Passerine birds represent the highest development of the avian type and comprise nearly one-half of the known species of birds. Because of this high degree of differentiation within narrow structural limits, practical expediency has led us to exalt to "family" rank groups which are actually no better than genera. Furthermore, the most obvious distinctions of "character" which assuredly do separate groups, when reduced to somatic, or structural, terms must seem highly artificial. To speak, then, "above the book," birds of this group have become so highly personalized that a merely physical description is inadequate.

Discussion of higher groups within the Passeriformes, whether suborders or superfamilies, is beside our purpose; but it is well for Californians to remember that the Flycatchers, Order *Tyrannidæ*, are set off from the remaining Passerine families of California, by reason of differently arranged syringeal muscles, which render their voices less varied or tuneful.

I. Back of tarsus rounded like the front.
  A. Bill hooked at tip. — *Fam.* 22. Tyrannidae, Flycatchers.
  B. Bill not hooked. — *Fam.* 21. Alaudidæ, Larks.
II. Back of tarsus a sharpened ridge.
  A. With 9 primaries.
    1. Tertiaries conspicuously elongated. — *Fam.* 20. Motacillidæ, Wagtails, Pipits.
    2. Tertiaries not conspicuously elongated.
      a. Bill very short; wings long and pointed. — *Fam.* 6. Hirundinidæ, Swallows.
      b. Bill moderate; wings moderate.
        (1). With angle of commissure (formed by opened mandibles) bent near base.
          (a). Angle abruptly deflected downward; bill cone-shaped. — *Fam.* 3. Fringillidæ, Sparrows.
          (b). Angle less sharply bent; bill usually more slender. — *Fam.* 2. Icteridæ, Troupials, etc.
        (2). Angle of commissure not bent.
          (a). Bill notched near tip. — *Fam.* 4. Tanagridæ, Tanagers.
          (b). Bill simple. — *Fam.* 5. Mniotiltidæ, Wood Warblers.
  B. With 10 primaries.
    1. Bill hooked at tip.
      a. Head crested, uncination moderate. — *Fam.* 7. Ampelidæ, Waxwings.
      b. Head not crested, uncination more sharply defined.
        (1). Small; under 6.50 inches long. — *Fam.* 9. Vireonidæ, Vireos.
        (2). Large; over 8.50 inches long. — *Fam.* 10. Laniidæ, Shrikes.
    2. Bill not hooked.
      a. Tarsus divided into scales (acrotarsium scutellate).
        (1). Tail feathers stiffened, pointed at tip. — *Fam.* 13. Certhiidæ, Creepers.
        (2). Tail feathers normal.
          (a). Nostrils entirely covered by forward-projecting frontal feathers.
            (a^1). Larger; feathers covering nostrils bristly — *Fam.* 1. Corvidæ, Crows, Jays.
            (b^1). Smaller; feathers over nostrils not bristly. — *Fam.* 11. Paridæ, Titmice.
          (b). Nostrils partly covered by feathers. — *Fam.* 12. Sittidæ, Nuthatches.
          (c). Nostrils bare.
            (a^1). Basal phalanges of anterior toes fully adherent. — *Fam.* 14. Troglodytidæ, Wrens.
            (b^1). Basal phalanges nearly or quite free. — *Fam.* 15. Mimidæ, Mockingbirds, Thrashers.
      b. Anterior tarsal covering nearly or completely united (acrotarsium booted).
        (1). With rictal bristles (at corner of mouth).
          (a). Bill short, flattened and deeply cleft. — *Fam.* 8. Ptilogonatidæ, Silky Flycatchers.
          (b). Bill normal.
            (a^1). Wings long and pointed, over 3.00 in length. — *Fam.* 17. Turdidæ, Thrushes.
            (b^1). Wings moderate with rounded tip, not over 2.50 in length. — *Fam.* 18. Sylviidæ, Old World Warblers.
            (c^1). Wings relatively short, very much rounded. — *Fam.* 19. Chamæidæ, Wren-Tits.
        (2). Without rictal bristles. — *Fam.* 16. Cinclidæ, Dippers.

Order 2. TROCHILIFORMES. Hummingbirds.

Small, non-passerine birds having slender, elongated beaks, not deeply cleft beyond base; largely metallic-lustered, often iridescent plumage; breast-bone enormously developed (for attachment of muscles to vibrate very moderate-sized wings at highest rate of speed); primaries 10; secondaries 6; rectrices 10; feet very small and weak although passerine in function, i. e., the thumb regularly opposed. Pygmy to sparrow (rarely) size. The various parts of the bird are susceptible of superficial modification, especially for ornamental purposes, but in structure the group is very uniform; in fact, the "order" is confessedly a family, exalted by reason of its distinctness and abundance. Eggs two, oval, white; young helpless at birth. American, especially tropically; over 500 species known, with an ever increasing number of "subs." One family, the *Trochilidæ*—7 species Californian.

Order 3. CYPSELIFORMES. Swifts.

Non-passerine birds having mouths deeply cleft, with rictal bristles; bills small, triangular; nostrils exposed; wings long, sharply pointed, always reaching beyond tail; primaries 10; secondaries 7-11; rectrices 10; feet relatively small and weak, the four toes all inclining forward, or else the 2nd toe and hallux loosely reversible. Pygmy to little hawk size; loosely or highly gregarious. Eggs 1-6; white, ovate, or elongate ovate; young naked. A fairly homogeneous, cosmopolitan group of two families (one Californian) and about a hundred species.

Order 4. PICIFORMES. Woodpecker-like birds, Jacamars, Barbets, Toucans, etc.

A diverse order of remotely "roller-like" birds, with characters too technical for consideration here. We are interested only in the *Picidae* (q. v.).

Order 5. CORACIIFORMES. Roller-like birds, Kingfishers, etc.

A diverse group of chiefly arboreal birds, having deep-seated structural characters insusceptible of simple definition. We are interested only in the *Alcedinidæ*, Kingfishers, (q. v.).

Order 6. CAPRIMULGIFORMES. Goatsuckers, Nighthawks, Poorwills, etc.

[Broadly defined, this order should probably include the suborder *Podargi*, and possibly *Steatornithes*. The discussion of these groups, however, would lead us too far afield, and we here characterize the central group, *Caprimulgi*, only]. Roller-like birds having soft, lax plumage of protective or self-toned shades; well developed wings with 10 primaries and more than 7 secondaries; 10 rectrices; bill deeply cleft, to or beyond the eye, the horny portion minute, depressed, of triangular outline; the gape (usually) bounded by highly developed bristles; feet weak, the tarsus shortened, partially feathered; the hind toe slightly elevated and turned to the side; the anterior toes connected basally by webs; the 4th toe usually having only 4 joints, the middle toe elongated and usually pectinated. Towhee to crow size. Chiefly migratory in temperate zones. Eggs 2; white or marked; laid on ground without nest.

Order 7. STRIGES. Owls.

Chiefly nocturnal birds of prey, having chiefly upright carriage and near-cylindrical form and many highly developed modifications adapted to their mode of life. These include softened, nearly noiseless plumage, highly neutralized or self-toned color-pattern, chiefly browns; a facial disc causing convergence of light upon the eye; a short highly convex and hooked beak, sheathed at base by a cere; and feet and tarsi fully feathered; the fourth toe reversible or movable through an angle of nearly 180 degrees. Warbler to brant size. A singularly homogeneous and cosmopolitan group, necessarily solitary in habit. Eggs 2-8; rounded; white; young altricial, covered at first with heavy whitish down. Two families, both Californian, of perhaps 300 species.

I. Facial disc rounded triangular; inner toe equal to middle. *Fam.* 1. Tytonidæ.
II. Facial disc circular; inner toe shorter than middle toe. *Fam.* 2. Strigidæ.

Order 8. COCCYGES. Cuckoos.

Terrestrial or arboreal birds, chiefly of normal or slender proportions (or else highly specialized in mimetic pattern), and having bills neither woodpecker-like nor parrot-like, and so distinguished by *zygodactylous* feet, i. e., two toes (2nd and 3rd) in front, and two (1st and 4th) behind. The reversion of the 4th toe is, moreover, permanent and not changeable, as in owls and woodpeckers. Sparrow to crow size; chiefly solitary, but occasionally communal. Nidification normal, parasitic or communal. In the first-named case eggs white or nearly so; pattern of parasitic eggs highly varied, chiefly to agree with those of host species. Young altricial, but also relatively precocious. Cosmopolitan. One family.

Order 9. COLUMBIFORMES. Doves and Pigeons.

Tree- or ground-haunting birds of normal proportions, having well developed, chiefly lengthened and flattened wings (in the living forms, which alone are considered here), with 11 primaries; feet with 4 toes; the hallux on the same level as the others, hence adapted for perching; tarsus shortened, usually shorter than the toes; bill (usually relatively small and slender, often weak and partially constricted mesially) horny, convex and somewhat enlarged at tip; at the base a tumid membrane in which the (usually slit-like) nostrils appear. Sparrow to gull size (*Gourinæ*); mildly to highly gregarious; migratory at extremes of range. Eggs 1 or 2; white or nearly so; young altricial. Cosmopolitan, especially abundant in the Australian region. Five or six families, of which one Californian.

Order 10. CHARADRIIFORMES. Plover-like birds.

"Shore-birds," frequenters of shores, mud-flats, and, less commonly, uplands; having deep-seated, structural characters which, apparently, ally them with the *Lariformes*, *Alciformes*, and, possibly, the *Columbiformes*. They possess few absolute superficial characters in common, but in general have rounded, compact, or depressed (but never compressed) bodies; often lengthened necks; lengthened, sharply pointed wings, with length of primaries rapidly decreasing from outermost, the secondaries usually increasing in length in reverse order; beaks short or long, but relatively slender, sometimes highly modified; sometimes leathery throughout or leathery at base with harder tip; legs usually lengthened, sometimes extremely so; the lower portion of tibia always bare; tarsus variously reticulate or scutellate; the hind toe, if present, short and elevated, the anterior toes usually cleft to base, or webbed basally—exceptionally, webbed (*Avocetta*) or lobed (*Phalaropodidae*); plumage sometimes patchy or unicolored, but more usually obliteratively streaked. Warbler to gull size; resident or highly migratory according to latitude. Eggs normally 4 or less, neutral as to ground, variously spotted, hieroglyphed or scrolled with browns or black; young highly precocial, feathered at birth, and nidifuguous. A cosmopolitan order of broadest distribution, comprising about a dozen families, and less than 400 species; 7 families and 37 species Californian.

I. Sides of toes with conspicuous lateral membrane or lobes.. *Fam.* 1. Phalaropodidæ.
II. Sides of toes without membrane or lobes.
  A. Tarsus over 3.50 inches. *Fam.* 2. Recurvirostridæ.
  B. Tarsus under 3.50 inches.
    1. Scales in front of tarsus large, squarish, regularly placed in one row.
      a. Bill slender, tip blunted. *Fam.* 3. Scolopacidæ.
      b. Bill stout, cuneate, straightened at tip. *Fam.* 6. Arenariidæ.
      c. Bill short, plover-like, but grooved; tail emarginate. *Fam.* 5. Aphrizidæ.
    2. Scales in front of tarsus small, numerous, irregular, or not square.
      a. Bill shorter than tarsus. *Fam.* 4. Charadriidæ.
      b. Bill longer than tarsus. *Fam.* 7. Hæmatopodidæ.

Order 11. LARIFORMES. Gulls, Terns, etc.

Small to large "*Charadriimorphi*," haunting shores and interior waters, and adapted to aquatic life by reason of close-set, impervious plumage and webbed feet. Birds of this group have rather short necks, strong wings, notably lengthened; tails moderate or elongated; short legs placed well forward, throwing body into horizontal position when at rest; anterior toes fully webbed; hind toe very small, elevated, or sometimes wanting; tibiæ distally naked; tarsus scutellate in front; bill various but usually simple, stout and sharp, sometimes uncinate and cered; nostrils simple, lateral, and freely open. Coloration usually simple, chiefly gray or dusky and white. Size sparrow to "large gull." Partially migratory or roving. Eggs, 2 or 3, heavily colored; young feathered, semi-precocial. A cosmopolitan group of four families, all but one Californian.

I. Bill with cere. *Fam.* 1. Stercorariidæ.
II. Bill simple.
  A. Bill stout, abruptly tapering at tip; tail chiefly square. *Fam.* 2. Laridæ.
  B. Bill more slenderly proportioned and gradually tapering; tail chiefly forked. *Fam.* 3. Sternidæ.

Order 12. ALCIFORMES. Auk-like Birds.

Marine birds of compact or short spindle-shaped outline, having close-set plumage adapted to continuous submersion, chiefly black or black-and-white in color; wings relatively small but fully functional (save in extinct Great Auk, *Pinguinus impennis*); legs set far back, necessitating upright position in standing; the tibio-tarsal joint naked, the feet well developed; hind toe absent, anterior toes fully webbed; bill simple and sharp-pointed, or highly varied, often with deciduous plates; nostrils various, feathered or not. Size range (of living species) sparrow to crow. Partially or highly gregarious; partially sedentary or retreating to open ocean at behests of season. Eggs 1 or 2; white or highly pigmented. Young clad with abundant down, partially nidicolous. Six families (five Californian), 29 species, of which 28 American and 10 Californian. Classification here adopted based (for once) on oological characters (infallibly sustained by structural differences, however minute).

I. Eggs single, white or nearly so.
  A. Eggs pure white, or with faintest green tinge only. Small birds of chunky form; nostril remote from feathers. *Fam.* 1. Æthiidæ.
  B. Eggs sordid white or with reminiscent markings of brown and violet gray. Crow size or nearly so. Bill stout with deciduous plates. Tail of 16-18 feathers. *Fam.* 5. Fraterculidæ.
II. Eggs colored or highly pigmented.
  A. Eggs 2, of normal shape, lightly spotted. *Fam.* 2. Cepphidæ.
  B. Eggs 2; elliptical, deeply or variously stained and fine-spotted. *Fam.* 3. Brachyramphidæ.
  C. Egg single; top-shaped, highly colored and heavily or extraordinarily pigmented. *Fam.* 4. Alcidæ.

Order 13. GRUES. Cranes.

Wading birds of lengthened, often stately, proportions; the wings ample, often modified by elongation of inner secondaries; tail short, of 12 feathers; head often partially denuded; bill stout, lengthened, with prominent nostrils; at least distal portion of tibia bare; feet stout, the anterior toes webbed at base; the hind toe elevated and much shortened. No description of external characters can be devised which will accurately cover the diverse families which most authors wish to include with the *Gruidæ* proper; but the eggs of Courlans (Family *Aramidæ*) so closely resemble the Gruids that there can be no possible doubt of their close phylogenetic relationship. Only one family, the *Gruidæ*, Californian.

Order 14. RALLIFORMES. Rails, Crakes, Coots, Gallinules.

Marsh-haunting waders or swimmers, having chiefly compressed bodies (depressed in case of Coots); short, rounded, highly concave wings; tail short, of 10 or 14 soft feathers; necks of moderate length; heads fully feathered; bills narrow, but often leather-like rather than horny; feet and legs greatly strengthened, the distal portion of tibiæ bare, the toes lengthened. Sparrow to crow size. Mildly to highly gregarious; sedentary or migratory. Eggs 3 or 4 to a dozen or more, invariably spotted, often finely. Young highly precocial, covered with down, often black. Practically cosmopolitan. A decadent group, showing weakening of characters, especially of wings. One family, the *Rallidæ*.

Order 15. GALLIFORMES. Fowls, Turkeys, Grouse, Pheasants, Partridges, etc.

Land birds, chiefly terrestrial, having stout, compact bodies, moderate or short necks, and relatively small heads, with reduced cranial capacity; short, rounded, concave wings; bill short and stout with convex culmen, and tomia of upper mandible overlapping lower; nostrils often concealed, scaled, or feathered; legs moderate or short, often feathered to the toes, sometimes to the nails; toes four, the three front ones connected by webs at base, the hind-toe greatly reduced (in many forms non-functional), elevated (save in *Cracidæ*). Plumage often assimilates closely to surroundings, but in some families becomes highly diversified and gorgeous. Size sparrow to eagle. Eggs numerous, plain or pigmented; young highly precocial. Sedentary or irregularly migratory. Cosmopolitan. There are perhaps six families, of which two native Californian and one (*Phasianidæ*) introduced.

I. Tarsi and toes and nasal fossæ naked.
  A. First (outer) primary much shorter than 10th, or if longer, then tail longer than wing. — *Fam.* 1. Phasianidæ.
  B. First primary as long as 10th; tail always shorter than wing. — *Fam.* 2. Perdicidæ.
II. Tarsi, toes and nasal fossæ feathered. — *Fam.* 3. Tetraonidæ.

Order 16. FALCONIFORMES. Falcons, Hawks, Eagles, Vultures.

Diurnal, raptorial birds, having strong 10-primaried wings, hooked beaks with cutting edges, often toothed, festooned, or notched, and a broad, wax-like growth, or plate, the *cere*, protecting the base of the upper mandible; feet usually strong with sharp claws, adapted for seizing (exception *Cathartidæ*); toes free, or connected near base by rudimentary membrane; tail normally of 12 rectrices. Sexes subsimilar, or sometimes superficially unlike, the female, except in *Cathartidæ*, usually the larger. Coloration of plumage variable, often shifting with age and subject to erythrism, etc., but usually without conspicuous seasonal changes. Size range, warbler to giant. Young altricial and highly dependent. Eggs usually 2-4, exceptionally 1-8, plain-colored, bluish, or variously pigmented with browns, often highly ornate. Sedentary or irregularly migratory. A cosmopolitan group, well distributed. A recent monographer, H. Kirke Swann, recognizes 329 species, with 352 additional races. 22 species with four additional races, Californian.

I. Normal characters of the group, suborder *Falcones*.
  A. Bill short, curved from base, toothed; tibia longer than tarsus; feet strong; wings long and pointed. — *Fam.* 1. Falconidæ.
  B. Outer toe reversible. — *Fam.* 2. Pandionidæ.
  C. Bill somewhat weakened, straight at base, feet small and weak, wings elongated. — *Fam.* 3. Milvidæ.
  D. Essential characters moderated; outer toe connected with middle toe by membrane basally. — *Fam.* 4. Buteonidæ.
II. Head and neck bare, the nostrils completely perforate; bill and feet weakened, unsuited to rending. — *Fam.* 5. Cathartidæ.

Order 17. ANSERES. Ducks, Geese, Swans.

Water birds of shapely, plump contour, or flattened below, having close-set plumage, necks of moderate or great length; relatively small, lamellate bills; nostrils usually oval, fully exposed; short legs (only tarsi, or heels, protruding from body envelope); three toes connected by full webs (rarely semipalmate), the hind toe small, simple, free; wings moderate, sharp-pointed; flight vigorous and rapid. Young precocial. Eggs 4-12, exceptionally up to 20, plain-colored, somewhat oily as to surface and more or less impervious to water. Size range, killdeer to giant. Sedentary or highly migratory, according to climate. Well distributed over all coastal and interior waters. A homogeneous group of one family of about 200 species, of which 40 Californian.

Order 18. HERODIONES. Herons, Storks, Ibises, Bitterns, etc.

Wading birds, having chiefly lengthened necks and legs; the lower (distal) portion of tibiæ bare; feet not webbed or only slightly so; the hind toe usually well developed, its insertion on a level with the remaining toes, and the entire foot adapted to perching; bill never weak, usually stout and sharply pointed or variously enlarged and modified; head usually more or less bare; wings well developed, not specially modified; tail short, with 12 rectrices or less; plumage loose, often filamentous or variously modified, and often provided with "powder down" patches in pairs. Young with scanty down, altricial. Eggs 3-7, ovate or elongate ovate; coloration of primitive type (i. e., unmarked or else stained with reddish brown). Size range, killdeer to giant. Resident or migratory, chiefly frequenting swamps and the margins of ponds. Seven families; four Californian.

[Analysis good for Californian families only.]

I. Bill long, straight, and sharply pointed. — *Fam.* 1. Ardeidæ.
II. Bill stout, abruptly decurved at tip. — *Fam.* 2. Ciconiidæ.
III. Bill long, slender, cylindrical, decurved. — *Fam.* 3. Ibididæ.
IV. Bill enlarged, flattened, spoon-shaped. — *Fam.* 4. Plataleidæ.

Order 19. STEGANOPODES. Cormorants, Boobies, Pelicans, Tropic-birds, Man-o'-war-birds, etc.

Water birds, chiefly pelagic; fish-eating; *totipalmate*, i. e., all four toes connected by continuous web, assuring proficiency in swimming or diving; *nostrils minute or wanting*; mouth deeply cleft; bill normally hooked (not in *Anhinga*, *Phaethon*, or *Sula*); a gular pouch at least rudimentary and sometimes enormously developed; tail normal or greatly lengthened; wing development ranging from moderate to maximum, as in *Fregata*. Size range, crow to giant. Nests chiefly in colonies; young usually naked, nidicolous. Eggs 1-5; white or bluish green, often overlaid with rough calcareous layer, sometimes stained with brownish red. Chiefly a group of stolid birds of low development or intelligence, but contains some highly specialized forms. Five families, Californian.

I. Bill sharp-tipped, not hooked.
  A. Central pair of tail-feathers greatly lengthened. — *Fam.* 1. Phaëthontidæ, Tropic-birds.
  B. Neck lengthened; diameter of head scarcely larger than that of neck. — *Fam.* 2. Anhingidæ, Darters.

II. Bill hooked at tip:
  A. Bill moderate; wings and tail normal. — *Fam.* 3. Phalacrocoracidæ, Shags.
  B. Bill and gular pouch greatly developed. — *Fam.* 4. Pelecanidæ, Pelicans.
  C. Wings and tail greatly developed. — *Fam.* 5. Fregatidæ, Man-o'-war-birds.

Order 20. PROCELLARIIFORMES. Petrels, Fulmars, Shearwaters, Albatrosses, etc.

Oceanic wanderers, hoverers, dabblers, or, rarely, (*Pelecanoididæ*) divers; having *tubular nostrils* (whether united or separated); sober plumage, chiefly gray, or black-and-white, or dingy brown; wings highly developed, pointed, with 10 stiff primaries, and often with notable increase in number of secondaries; tail normal, of 12-18, usually 14, feathers; lower end of tibia usually bare; tarsus often lengthened; feet short, fully webbed; hind toe elevated, rudimentary or wanting, bill moderate to stout, hooked, its horny covering consisting of several (up to 9) separate plates. Young with heavy down, nidicolous. Egg, *single*, pure white or lightly marked with reddish brown, often placed at end of burrow. Size range, warbler to giant. Migratory or wandering, repairing to land only to breed. Three families, of which two Californian.

I. Nostrils separated, lateral; hind toe rudimentary. — *Fam.* 1. Diomediidæ, Albatrosses.
II. Nostrils united, on culmen; hind toe evident, although small. — *Fam.* 2. Procellariidæ, Petrels, Shearwaters, etc.

Order 21. GAVIÆ. Loons, Divers.

Diving birds with flattened bodies; close-set, impervious plumage; moderately lengthened necks; acute, lengthened bills, with linear, exposed nostrils near base; legs set well back, deeply concealed; the tarsus compressed; toes 4, the 2nd to 4th fully webbed, the hind toe on a level with the others and slightly connected with 2nd by web; wings strong, acute, with 10 developed primaries; tail shortened but fully formed, of 18-20 stiff feathers. Some seasonal color changes of plumage, but no special ruffs or tufts. Young downy, nidifugous. Eggs 2, elongated; deep olive-brown or greenish drab, marked with blackish. Size range, gull to goose. Migratory, wintering off-shore or on larger interior waters, breeding northerly near lake or pond. One family, the *Gaviidae*.

Order 22. PODICIPEDES. Grebes.

Diving birds, with rudimentary tails (a mere tuft of down); wings shortened, rounded, deeply hollowed, with 11 developed primaries; legs set well back ("rump-footed"); feet and tarsi highly modified, the latter sharply compressed; the toes flattened, webbed at base and provided with large collapsible lobes distally, the hind toe elevated, lobed, and free; neck usually lengthened; plumage very compact, satiny, and highly impervious to water; head often provided with tufts or ruff in nuptial season; bill lengthened, acute, nostrils placed near tip. Young downy, nidifugous. Eggs 3-8, greenish white or yellowish. Size range, robin to brant. Migratory; found in off-shore waters during migrations and in winter, but breed in fresh water lakes and ponds. One family, with characters that of the order, the *Podicipedidæ*.

Key to the Species

Order 1. PASSERIFORMES.

Family 1. Corvidæ. Crows, Magpies, Jays.

Chiefly large-sized Passeres having 10 primaries, the first (outermost) much shorter than second; bill stout, about as long as head, the nostrils covered (except in *Cyanocephalus*) by a tuft of bristly feathers directed forward; rictal bristles moderate; tarsus scutellate (with overlapping plates) in front separated from remaining portions by groove on one or each side. Non-migratory. Eggs 3-7, chiefly niagara green, spotted. Nearly cosmopolitan; upwards of 100 species (with subspecies 300), 11 Californian.

I. Plumage entirely black.
  A. Larger, length about two feet. — **1. Raven.**
  B. Smaller, length about 19 inches. — **2. Western Crow.**
II. Plumage chiefly gray, set off by black and white. — **3. Clark's Nutcracker.**
III. Plumage black and white.
  A. Bill black. — **5. American Magpie.**
  B. Bill yellow. — **6. Yellow-billed Magpie.**
IV. Extensively blue.
  A. With crest. — **10. Steller's Jay.**
  B. Without crest.
    1. Chiefly blue throughout. — **4. Pinyon Jay.**
    2. Back gray; underparts chiefly white or whitish.
      a. Crissum white. — **7. California Jay.**
      b. Crissum tinged with blue.
        (1). Larger; insular. — **8. Santa Cruz Jay.**
        (2). Smaller; found on mainland. — **9. Woodhouse Jay.**
V. Plumage gray, darkening on head. — **11. Oregon Jay.**

Family 2. Icteridæ. Troupials, Orioles, Blackbirds, "American Starlings."

Medium sized to large Passeres; having 9 primaries, the outermost usually the longest; bills "cultrirostral," moderate, slender-conical, acute, rarely longer than head; angle of commissure bent or angled; nostrils not covered with feathers; without obvious rictal bristles; tarsus scutellate. Plumage often highly colored, but blacks run strong in family. Eggs 4 or 5, pale niagara green to white, often highly scrawled or variously pigmented. An American family, chiefly tropical, of perhaps 150 species, 11 Californian.

Key to ADULT MALES.

I. Plumage chiefly black; no yellow.
  A. Shining black throughout.
    1. Greenish black throughout (in non-breeding plumage more or less tipped with rusty). — **13. Rusty Blackbird.**
    2. Greenish black, but head with contrasting violet reflections. — **14. Brewer's Blackbird.**
  B. Black duller; head brown. — **12. Cowbird.**
  C. Lesser wing-coverts scarlet.
    1. Scarlet area bordered posteriorly by white. — **18. Tricolored Redwing.**
    2. Scarlet area bordered by warm buff (at least basally). — **19. Red-winged Blackbird.**
II. Plumage black and yellow, touched with white.
  A. Foreparts cadmium yellow setting off black mask. — **15. Arizona Hooded Oriole.**
  B. Foreparts and back black; underparts pure yellow. — **16. Scott's Oriole.**
  C. Crown continuous with black; underparts orange. — **17. Bullock's Oriole.**
  D. Head, neck and breast chiefly yellow; a large white patch on wing; remaining plumage black. — **20. Yellow-headed Blackbird.**
  E. General plumage black; nape honey-yellow; rump, etc., pale white. — **22. Bobolink.**
III. Upperparts brownish-streaked; breast yellow with black crescent. — **21. Western Meadowlark.**

Key to ADULT FEMALES AND YOUNG

I. Plumage chiefly streaked.
  A. With much tawny yellow. — **22. Bobolink (female and young, and male in autumn).**

B. Chiefly black, more or less streaked with whitish, and sometimes tinged with rusty.
1. Darker. **18. Tricolored Redwing.**
2. Lighter. **19. Red-winged Blackbird.**
C. Light and dark gray. **12. Cowbird (Im.).**
D. Upperparts streaked; breast yellowish with veiled black jugulum. **21. Western Meadowlark.**

II. Plumage little if any streaked.
A. Nearly unicolored, much like males but without special decoration or glosses.
1. Fuscous and drab, obscurely varied. **12. Cowbird (female).**
2. Blackish slate, shading to neutral gray below. **13. Rusty Blackbird.**
3. Foreparts grayish brown, shading posteriorly into mingled drab and glossy black. **14. Brewer's Blackbird.**
4. Brownish dusky with some outcropping of dull yellow, especially on breast. **20. Yellow-headed Blackbird.**
B. Plumage varied, but extensively yellow or yellow-tinged.
1. Underparts entirely yellow. **15. Arizona Hooded Oriole.**
2. Breast chiefly black, everywhere more or less tinged with greenish yellow. **16. Scott's Oriole.**
3. Color tone reddish yellow; underparts extensively whitish; tail yellow below. **17. Bullock's Oriole.**

Family 3. FRINGILLIDÆ. Sparrows.

Small to medium-sized Passeres, having 9 primaries, a cone-shaped beak, and the commissure (line of closure of mandibles) angled, sharply declined downward near base (a character shared only, and in lesser degree, by the *Icteridae*). Plumage chiefly of modest colors, inclined to uniformity or else streakiness—but also brilliant exceptions. Eggs, chiefly 3-6, sometimes unpigmented but usually more or less heavily spotted or blotched. Cosmopolitan except Australia—the largest family of birds in North America. As a whole contains over 600 species, of which 52 species or 108 "forms" Californian—nearly one-fifth of our total avifauna.

NOTE.—Although careful descriptions of juvenile plumages are given in the text, the key furnished below assumes to cover adult plumages only, and those in the most obvious and artificial fashion. The field is one of extreme difficulty for the novice.

I. Plumage pattern of adults (at least of adult males) exhibiting uniform or else contrasting color areas; *not* conspicuously streaked.
A. Conspicuously marked with red.
1. Tips of mandibles crossed. **24. Red Crossbill.**
2. Chiefly rosy red, but at least crissum ashy gray. **25. California Pine Grosbeak.**
3. Red in highest plumage only nearly engulfing an otherwise streaked bird.
a. Crown carmine red, contrasting with back. **32. Cassin's Purple Finch.**
b. Crown duller, like back. **33. California Purple Finch.**
4. Nape broadly vermilion red; remaining plumage chiefly purplish. **71. Beautiful Bunting.**
5. A large red spot on chest; otherwise black and white. **73. Rose-breasted Grosbeak.**
B. Conspicuously marked with rufous or brownish.
1. Crown and hind neck chestnut; otherwise extensively olive-green. **66. Green-tailed Towhee.**
2. Sides and flanks broadly tawny; otherwise black and white. **67. Spotted Towhee.**
3. Chest ochraceous tawny; otherwise blue and white. **70. Lazuli Bunting.**
4. Underparts and rump extensively orange-tawny; black and white and lemon-yellow elsewhere. **74. Black-headed Grosbeak.**
C. Conspicuously marked with blue.
1. Head, neck, and upperparts light blue; elsewhere tawny and white. **70. Lazuli Bunting.**
2. Hind-neck, rump, etc., purplish blue; elsewhere red and purplish. **71. Beautiful Bunting.**
3. Chiefly violet blue. **72. Blue Grosbeak.**
D. Conspicuously marked with yellow or olive.
1. Length 5.50 or more.
a. Plumage chiefly sooty olive-brown or olive-yellow. **23. California Evening Grosbeak.**
b. Tips of mandibles crossed. **24. Red Crossbill (female).**
c. Plumage gray, washed with dingy yellow or ochraceous. **25. California Pine Grosbeak (female).**
d. Extensively yellow or olive-gray; crown chestnut. **66. Green-tailed Towhee.**

c. Axillars and wing-linings lemon-yellow; otherwise black and tawny.
2. Length about 5 inches.
a. Chiefly yellow and black in abruptly contrasting pattern.
d. Black of crown less distinct by reason of olive-green back. General color neutral gray.
c. Breast only clear yellow; throat (narrowly) black.

E. Or else at least marked with black or blackish or neutral gray in solid area.
1. Chiefly black; a large white blotch on wing.
2. Head and neck broadly blackish abruptly contrasting with white of underparts centrally.
a. General color slaty black (female lighter, more brownish).
b. Head, neck, and chest sooty black contrasting with back.
c. Head and neck all around neutral gray; back chestnut-brown.
d. Lores, chin, throat, and chest centrally black; crown neutral gray.

F. Of nearly uniform coloration.
1. General color cinnamon-gray; crissum mikado-brown.
2. Olive-brown to drab; crissum abruptly tawny.

II. Plumage (at least of adult female) conspicuously streaked in some portion.

A. Conspicuously marked with red.
1. Smaller—length 5.50 or less; chin, lores and frontlet black.
2. Larger—length 6 or over.
a. Plumage rich brown bordered by rosy; streaking confined to middle of back.
b. Both sexes heavily and almost uniformly streaked, but young(?) males more or less suffused with red.
(1). Red clearer, brighter, and more confined to definite areas.
(2). Red duller, more diffused.
(a). Crown brighter than back.
(b). Crown like back in color.

B. Marked with rufous or brownish in definite clear area.
1. Upperparts of nearly uniform (blended) coloration (save in *typicus* which is highly variegated); underparts more or less heavily streaked.
2. Top of head reddish brown.
a. Above chiefly rufous, mingled (except on crown where almost pure) with olive-gray.
b. Tail forked.
(1). No black on forehead; two rather conspicuous bars of white on wing.
(2). Extreme forehead black; wing-bars inconspicuous.
c. Tail rounded; back heavily striped with black; under plumage, except chin and throat, heavily washed with brownish gray.
3. Cervical collar chestnut.
a. Entire head, throat and chest black.
b. Head black, white and buff.
4. Bend of wing "bay" (sayal brown).

C. Conspicuously marked with yellow.
1. Flight-feathers and rectrices sulphur-yellow at base.
2. A broad crown-patch pyrite yellow (or dull olive-yellow, *im.*).

D. Marked with definite black area.
1. Chin, throat and breast, broadly, black; pileum mouse-gray.
2. Head, throat and chest black; nape chestnut.
3. Crown, sides of neck and breast black; throat buffy.
4. "Face," chin and upper throat black; underparts neutral gray.
5. Top of head, face, broadly, and throat black, the color breaking up posteriorly; belly white.

E. Streaked sparrows marked by other sharply distinguishing characters.

74. Black-headed Grosbeak.

29. Willow Goldfinch.

30. Green-backed Goldfinch.
31. Lawrence's Goldfinch.

38. Lark Bunting.

50. Slate-colored Junco.
51. Oregon Junco.

52. Gray-headed Junco.

47. Desert Sparrow.

68. Albert's Towhee.
69. Brown Towhee.

27. Common Redpoll.

26. Sierra Nevada Rosy Finch.

34. California Linnet.

32. Cassin's Purple Finch.
33. California Purple Finch.

65. Fox Sparrow.

46. Rufous-crowned Sparrow.

53. Western Tree Sparrow.
54. Western Chipping Sparrow.

64. Swamp Sparrow.

36. Alaska Longspur.
37. Chestnut-collared Longspur.
40. Vesper Sparrow.

28. Pine Siskin.
58. Golden-crowned Sparrow.

35. English Sparrow.
36. Alaska Longspur.
37. Chestnut-collared Longspur.

55. Black-chinned Sparrow.

57. Harris's Sparrow.

1. Notably gray.
   a. Head and neck above and on sides deep neutral gray; blackish streaking of back and scapulars very light. **48. Bell's Sparrow.**
   b. As foregoing but much lighter gray; black streaking heavier. **49. Sage Sparrow.**
2. A whitish or buffy blotch on wing. **38. Lark Bunting (female).**
3. Head notably striped.
   a. Head sharply variegated, black, white and chestnut. **39. Western Lark Sparrow.**
   b. Crown-stripes black (or mars brown) separated by central stripe and bounded by superciliaries of white.
      (1). Lores narrowly black. **59. White-crowned Sparrow.**
      (2). Lores not black—whitish instead.
         (a). Lighter throughout; bend of wing pale yellow. **60. Gambel's Sparrow.**
         (b). Darker throughout; bend of wing more strongly yellow. **60a. Nuttall's Sparrow.**
   c. Superciliary yellow on anterior portion. **61. White-throated Sparrow.**
4. Head less notably striped.
   a. Head showing 12-radiate pattern of blackish and whitish; superciliary tinged or not with yellow; inner secondaries lengthened, about equal to primaries in closed wing.
      (1). Of medium color tone; bill less than .50 (12.7). **41. Savanna Sparrow.**
      (2). Darker throughout; bill .45 (11.5). **42. Belding's Sparrow.**
      (3). Medium color tone; bill about .52 (13). **43. Large-billed Sparrow.**
   b. 12-radiate pattern of head more varied in tone and less distinctly maintained; inner secondaries not lengthened.
      (1). Broadly streaked; chest not specially tinged. **62. Song Sparrow.**
      (2). Sharply streaked; chest definitely creamy buff. **63. Lincoln's Sparrow.**

F. The merely streaked.
1. Rectrices narrow and sharpened; breast and sides suffused with cinnamon or tawny.
   a. Suffusion of breast light; a yellow spot over eye. **44. Western Grasshopper Sparrow.**
   b. Suffusion of breast, etc., strong; no yellow over eye. **45. Nelson's Sparrow.**
2. Rectrices normal; entirely but not strongly streaked. **56. Brewer's Sparrow.**

Family 4. TANAGRIDÆ. **Tanagers.**

Small to medium-sized Passeres, having 9 primaries and moderate, somewhat turgid beaks, with culmen of convex outline, notched at tip and toothed or lobed near middle of the maxillary tomia; tarsi scutellate. An essentially neo-tropical family of chiefly high-plumaged birds, some members of which are not easily distinguishable from Fringillids, on the one hand, or Mniotiltids on the other. Approximately 300 species, of which 2 Californian.

I. Male dull red; female chiefly yellowish olive-green and without wing-bars. **75. Summer Tanager.**

II. Male yellow and black with bright red on head; female olive-gray to greenish yellow, with whitish wing-bars. **76. Western Tanager.**

Family 5. MNIOTILTIDÆ. **Wood Warblers.**

Chiefly small-sized Passeres having 9 primaries, slender or flattish beaks of simplest form and scutellate tarsi,—destitute of notable modifications of any sort. A fairly homogeneous and generalized type, difficult to define by reason of very simplicity. An exclusively American family of some 200 species, notably migratory throughout the United States and British Possessions. 24 species recorded for California, of which 7 accidental or nearly so, and only 12 breeding.

I. Underparts streaked.
A. Streaks chestnut.
1. Remaining plumage yellow. **83. Yellow Warbler.**
2. Crown chestnut; back olive-brown. **93. Palm Warbler.**

B. Streaks black or blackish.
1. Entire plumage black and white. **77. Black-and-white Warbler.**
2. Throat black (in highest plumage) on a yellow ground. **89. Townsend's Warbler.**
3. Upperparts, at least in part, blue-gray.
   a. Rump yellow.
      (1). Throat white. **86. Alaska Myrtle Warbler.**
      (2). Throat yellow, not streaked.
         (a). Middle of tail white. **84. Magnolia Warbler.**
         (b). Tail-feathers notched with white near tips. **87. Audubon's Warbler.**
   b. Rump not yellow; throat black; a supraloral spot of yellow. **88. Black-throated Gray Warbler.**
4. Upper plumage chiefly olive-brown or olive buffy.

a. Crown ochraceous orange. **95. Oven-bird.**
b. Crown much like back.
(1). Superciliary white; underparts whitish; throat nearly immaculate. **96. Louisiana Water-Thrush.**
(2). Superciliary and underparts tinged with yellow; throat spotted. **97. Alaska Water-Thrush.**

II. Underparts without streaks.
A. Plumage chiefly or conspicuously yellow.
1. Length over 7; anterior underparts bright yellow. **99. Western Chat.**
2. Length under 6.
a. Entire head slaty or dark gray. **94. Tolmie's Warbler.**
b. Forehead and cheeks black. **98. Yellow-throat.**
c. Crown-patch, if any, lustrous black. **100. Wilson's Warbler.**
d. Throat broadly black; two white wing-bars.
(1). Head clear yellow. **91. Hermit Warbler.**
(2). Top of head "warbler-green" (olivaceous). **90. Black-throated Green Warbler.**
e. Pileum and hind neck bluish ash. **78. Tennessee Warbler.**
f. Forehead above and on sides neutral gray; a partially concealed crown-spot of chestnut. **80. Calaveras Warbler.**
g. A concealed crown-spot of orange. **79. Orange-crowned Warbler.**
B. Upperparts chiefly light neutral gray.
1. A partially concealed patch on crown, and upper tail-coverts chestnut. **81. Lucy's Warbler.**
2. Crown-patch chestnut; rump lemon-yellow. **82. Virginia's Warbler.**
C. Upperparts green-blue-gray, spotted with black; forehead, throat, breast and sides black; a white blotch on wing (diagnostic for female). **85. Black-throated Blue Warbler.**
D. Crown olive-yellow; sides chestnut. **92. Chestnut-sided Warbler.**
E. Plumage chiefly black, with patches of salmon-red (dull yellow, female and young male). **101. American Redstart.**

Family 6. Hirundinidæ. **Swallows.**

Small to medium-sized Passeres, having 9 primaries, chiefly lengthened (the longest always more than twice as long as the longest secondary); bill flattened, small, triangular in vertical aspect; culmen minutely hooked at tip and notched subterminally; gape deeply cleft; rictal bristles few, short, or wanting; feet small and weak; tarsi short, chiefly scutellate. Eggs 3-8, white, immaculate, or spotted. A cosmopolitan family of over 100 species, of which 7 Californian.

I. Upperparts brown or brownish gray without metallic reflections; underparts white.
A. A brownish gray band across chest. **105. Bank Swallow.**
B. Breast and sides suffused with brownish. **104. Rough-winged Swallow.**
II. Plumage of upperparts with metallic luster.
A. Nearly unicolored; underparts like back, or merely lighter shaded (female). **102. Western Martin.**
B. Throat rufous. chestnut or brownish.
1. Tail deeply forked. **106. Barn Swallow.**
2. Tail not forked; upper tail-coverts rufous or buffy. **103. Cliff Swallow.**
C. Underparts entirely white.
1. Upperparts slaty blue or steely green. **107. Tree Swallow.**
2. Upperparts bronzy green and violet. **108. Violet-green Swallow.**

Family 7. Ampelidæ. **Waxwings.**

Medium-sized Passeres having 10 primaries, the outermost minute; tail shorter than wing; bill short, stout, slightly hooked and notched at tip; nostrils nearly concealed by dense velvety feathering; plumage soft and exquisitely graduated and blended in coloring; head with a conspicuous crest; tips of shafts of secondaries and sometimes rectrices (of two species) ornamented by horny appendages which have the appearance of red sealing-wax. Eggs 4-6, dull bluish gray, sharply and sparingly spotted with black. A small homogeneous group of 3 species, of sub-Arctic and North Temperate range, 2 Californian.

I. Larger; throat black; wings spotted with white. **109. Bohemian Waxwing.**
II. Smaller; throat brown; no white on wings. **110. Cedar Waxwing.**

Family 8. Ptilogonatidæ. **Silky Flycatchers.**

Moderate-sized Passeres having 10 primaries, the outermost well developed (but not more than as long as 9th); wings short, rounded; tail lengthened, fan-shaped; bill short, flattened, and deeply cleft; rictal bristles well developed; tarsus scutellate; plumage silky, lustrous, often blended, never spotted, even in immature. Eggs 2 or 3, gray, finely speckled. An exclusively "Middle American" family of 4 species, 1 Californian.

111. Phainopepla.

Family 9. VIREONIDÆ. **Vireos.**

Small Passeres having 10 primaries, the outermost (strictly speaking the 10th, but formerly, and occasionally herein, referred to as the 1st) never more than half as long as the 9th, sometimes rudimentary and concealed; wings longer than tail; bill moderate; hooked and notched at tip; tarsus longer than middle toe and claw, scutellate; color pattern never streaked, of modest and often blended tones. Eggs 3-4, white, sharply, minutely, and sparingly spotted. An American family, chiefly tropical, of some 70 species, 7 recorded for California.

I. Outermost primary well developed, at least one-third, often one-half, as long as next (9th).
  A. Length over 5.00; gray coloration. **117. Gray Vireo.**
  B. Length less than 5.00.
    1. Dingy yellowish; wing-bars whitish; a pale yellowish ring nearly encircling eye. **116. Hutton's Vireo.**
    2. Dull gray above, white below. **118. Least Vireo.**

II. Outermost primary rudimentary or else very small, less than one-third as long as 9th.
  A. Length 6.00 or more.
    1. A narrow white eye-ring; whitish wing-bars; slaty gray head contrasting with olivaceous back. **115. Solitary Vireo.**
    2. Crown grayish slate bordered by blackish; iris red. **112. Red-eyed Vireo.**
    3. Somewhat as in preceding, but with strong increase of yellow. **113. Yellow-green Vireo.**
  B. Length less than 6.00—a very "plain" bird. **114. Western Warbling Vireo.**

Family 10. LANIIDÆ. **Shrikes.**

Medium-sized Passeres having 10 primaries (the outermost sometimes more than half as long as the 2nd [9th] but usually less); wings and tail rounded, usually of about equal length; bill well developed and conspicuously hooked, notched and toothed near tip of upper tomium; feet relatively rather weak; tarsi scutellate in front, and also upon outside. Plumage usually sober—black, white, gray, brownish or rufous. Young with plumage wavy-barred or vermiculated. Eggs 3-7, whitish or gray, boldly spotted. About 200 species with distribution chiefly Old World, especially northerly—not found in South America. In North America represented by two species, both Californian.

I. Larger; wing about 4.50. **119. Northwestern Shrike.**

II. Smaller; wing 4.00 or less. **120. White-rumped Shrike.**

Family 11. PARIDÆ. **Titmice.**

Small Passeres having 10 primaries, the outermost not more than half as long as the longest; wings rounded; tail variable; bill small, much shorter than head, the maxillary tomium without subterminal notch, the nostrils entirely concealed by "antrorse" (directed forward) frontal feathers (in this respect, as in several others, closely resembling the Corvidæ); tarsus scutellate; "anterior toes much soldered at base." Plumage often loose and fluffy. Eggs 4-10, white, unmarked, or variously speckled and spotted. Northern Hemisphere, chiefly Palæarctic; over 200 species and subspecies—7 species Californian.

I. Crested; unicolored. **121. Plain Titmouse.**

II. Not crested.
  A. Head yellow; bend of wing bright chestnut. **125. Verdin.**
  B. Olive-brown and mouse-gray.
    1. Color of pileum contrasting with that of back. **126. Coast Bush-Tit.**
    2. Pileum of same color as back. **127. Lead-colored Bush-Tit.**
  C. Throat black; pileum black or brown.
    1. Top of head, including eye, solid black. **122. Oregon Chickadee.**
    2. Black of head interrupted by white superciliary. **123. Mountain Chickadee.**
    3. Top of head dull sepia brown, blackening on borders; back chestnut. **124. Chestnut-backed Chickadee.**

Family 12. SITTIDÆ. **Nuthatches.**

Small tree-creeping Passerids having 10 primaries (the outermost less than one-third as long as the next [9th]); wing long and pointed; tail short, soft, even-ended; bill long, straight or slightly upturned, without tooth or other irregularity of tomia; tarsus about as long as beak, decidedly longer than middle toe without claw; lateral toes unequal, the middle one much the longest, the inner one (2nd) decidedly shorter than the outer (4th); claws greatly developed and sharpened. Eggs 3-9, white, sharply spotted. A small, rather homogeneous family, chiefly Old World, but 4 species North American, of which 3 Californian.

I. Side of head and neck white. **128. White-breasted Nuthatch.**

II. Side of head and neck not entirely white.
  A. A small line over eye. **129. Red-breasted Nuthatch.**
  B. No white line over eye. **130. Pygmy Nuthatch.**

Family 13. CERTHIIDÆ. **Creepers.**

Very small, tree-creeping Passerids having 10 primaries; lengthened but rounded wings; tail either (a) much shorter than wing, of unmodified feathers; or (b) about as long as wing, of notably stiffened, pointed feathers; bill slender, curved, at least near tip, of simple outline; toes much as in preceding family, claws notably curved. A small cosmopolitan (except South America) family, of easily distinguished appearance and habit—less than 20 species, the most wide-spread represented in California by two races.

131. Brown Creeper.

Family 14. TROGLODYTIDÆ. **Wrens.**

Small to medium-sized Passerids, having 10 primaries, the outermost at least half as long as the next (9th); wings notably rounded; bill lengthened, slender, compressed, usually decurved, otherwise simple; tarsus long. Coloration more or less brownish or rufescent. Eggs 5-10, white or speckled, often very heavily. A highly developed neo-tropical and, to a much larger degree, neo-temperate family, with a small wide-spread spill-over (aggregating about 15 species) into the Old World—about 200 species, 150 of them neo-tropical, 7 Californian.

I. Length about 8 inches. **133. Cactus Wren.**

II. Length 4.50 or over.

A. Back black, striped with white. **132. Marsh Wren.**

B. Back spotted by dusky and pinkish buffy. **137. Rock Wren.**

C. Back nearly uniform, or at most vaguely barred with dusky.

1. A distinct white line over eye. **134. Bewick Wren.**

2. No white line over eye.

a. Above brown changing to auburn on posterior underparts; throat broadly white. **138. Auburn Canyon Wren.**

b. Above grayish brown, lightening, but never pure white, below. **135. Western House Wren.**

III. Length about 4.00. **136. Western Winter Wren.**

Family 15. MIMIDÆ. **Thrashers, Mockingbirds.**

Medium-sized Passerids having 10 primaries, the outermost well developed (except in *Oreoscoptes* at least half as long as 9th); slender bill, usually decurved and slightly notched toward tip (except in *Toxostoma*); tarsus scutellate; inner (2nd) toe almost or quite free at base. Eggs 3-5, niagara green or pale stone-colored, usually finely spotted. An exclusively American group, central in Mexico, and including some of the world's finest songsters. 50 species and subspecies, of which 8 Californian.

I. Smallest, length about 8.00; bill shortest (about .65); outermost primary less than half as long as next (9th). **146. Sage Thrasher.**

II. Middle-sized, length 8.50-11.00; bill moderate; coloration not drab.

A. Length about 8.75; slate-colored, blackening on pileum and tail. **144. Catbird.**

B. Length 10.00 or over; black and brownish gray, with white blotch on wing. **145. Western Mockingbird.**

III. Middle-sized to largest; bill moderate to largest; coloration drab or some derivative thereof.

A. Smaller.

1. Length 10.00 or under; bill .94; coloration medium. **140. Bendire's Thrasher.**

2. Length 10.00 or over; bill 1.29; coloration palest. **142. Leconte's Thrasher.**

B. Middle-sized, length (of males) about 10.50. [Note: the measurements given in the text are at fault, and should read: Length of males .266 (10.50)]; bill 1.25; coloration medium. **139. Palmer's Thrasher.**

C. Larger; length 11.00-12.00; bill about 1.40.

1. Coloration darkest above; lighter but blended below. **141. California Thrasher.**

2. Somewhat lighter above; darker below, with more contrasting white of throat and rufous of crissum. **143. Crissal Thrasher.**

Family 16. CINCLIDÆ. **Dippers.**

"Aquatic, slender-billed, 'ten primaried', acutiplantar Oscines, with plump body, short tail, short and very concave wings; rather long, booted tarsi; plumage very soft, compact and underlaid with down, and feathers of the anterior portion of the head short and dense, without the usual bristly tips, even the rictal bristles being absent" (Ridgway). Eggs 4 or 5, white. A small sharply circumscribed family of about a dozen species, found in Europe, central and northern Asia, and in western America south to Argentina. Only one species Californian.

147. American Dipper.

Family 17. TURDIDÆ. **Thrushes.**

Moderately small to large, but chiefly medium-sized Passerids having 10 primaries (the outermost shortened or "spurious"), and booted tarsi (i. e., the front of the tarsus covered by a continuous plate); wings long and pointed, usually longer than tail; bill slender, compressed, acute, usually with small subterminal notch; nostril oval or rounded, usually well exposed; rictus bristled; anterior toes deeply cleft, the inner (2nd) free to base. Chiefly highly migratory. Eggs 3-7, chiefly niagara green, plain or spotted. Young more or less spotted above and below. Nearly cosmopolitan, but notably Palæarctic and American; about 275 species, of which only 7 Californian.

I. Bill flattened, broader than deep at base; plumage smoky gray. **154. Townsend's Solitaire.**

II. Bill not flattened.

A. Plumage with more or less blue.
1. Adult male entirely blue, without chestnut. **153. Mountain Bluebird.**
2. With chestnut on back and breast. **152. Western Bluebird.**

B. Head extensively black or slaty; underparts rufous or ochraceous.
1. A pectoral band of black; wings varied. **151. Varied Thrush.**
2. No pectoral band; wings plain. **150. Western Robin.**

C. Plumage brown above, spotted below on a whitish ground.
1. Color of upperparts abruptly contrasting with rufescent tail. **148. Hermit Thrush.**
2. Color of back, etc., not contrasting with that of tail. **149. Russet-backed Thrush.**

Family 18. SYLVIIDÆ. **Old World Warblers, Kinglets, Gnatcatchers, etc.**

"Very small to large 'ten primaried', dentirostral, acutiplantar Oscines, with nostrils longitudinal and operculated (usually exposed), and with the young not spotted" (Ridgway). A confessedly difficult and probably heterogeneous family of at least more than 100 species and of nearly cosmopolitan range. The *Regulus-Corthylio* group is of Palæarctic derivation, while the *Polioptila* group is exclusively American. Five species Californian.

I. Tarsus booted; colors olivaceous; no black on tail.

A. Male with simple ruby crest. **156. Ruby-crowned Kinglet.**
B. Crest striped, flame-color or yellow, bordered by blackish. **155. Western Golden-crowned Kinglet.**

II. Tarsus scutellate; colors blue-gray and white, with much black on tail.

A. Forehead and superciliaries (of male) black; tail bordered by white. **157. Western Gnatcatcher.**
B. Entire top of head black; tail bordered by white. **158. Plumbeous Gnatcatcher.**
C. Top of head black; no white on tail. **159. Black-tailed Gnatcatcher.**

Family 19. CHAMÆIDÆ. **Wren-Tits.**

A small group with intermediate characters, suggestive of *Paridæ* on the one hand and *Troglodytidæ* on the other, but probably not derived from either. Their chief distinctions are short, excessively rounded wings and long, graduated tails, with plumage notably loose in texture. Only one species known and that confined to California and Oregon.

160. Wren-Tit.

Family 20. MOTACILLIDÆ. **Wagtails and Pipits.**

Rather small terrestrial Passerids having 9 primaries; well developed, rather pointed wings, and greatly elongated tertials; bill slender, notched near tip; nostrils exposed; tarsi long and scutellate; the outer toe united to middle throughout the basal phalanx, the inner toe free to base; the hind claw usually lengthened. Eggs 4 or 5, usually heavily spotted or buried under pigment. A highly developed and widely diffused family of the Old World, numbering something over 100 species and subspecies. Six of these are registered as of accidental or borderline occurrence in North America, and two more are indigenous. The California species is

161. American Pipit.

Family 21. ALAUDIDÆ. **Larks.**

Terrestrial, nine- or ten-primaried Oscines, having the back of the tarsus rounded (instead of sharpened) and scutellate. Bill simple, of various outline, but without subterminal notch; wings long and pointed, the outermost (10th) primary short, rudimentary, or concealed; head usually crested, or with horn-like feather-tufts on each side of the occiput. Eggs 3-5, protectively colored. A large, well-defined family of over 100 species; chiefly Old World —one very plastic species North American and Californian.

162. Horned Lark.

Family 22. TYRANNIDÆ. **Tyrant Flycatchers, New World Flycatchers.**

Characters those of the superfamily, *Clamatores*. Primaries 10, the outermost fully developed; bill hooked, often flattened, sometimes exceedingly so, thus triangular in outline when viewed from above; nostrils usually more or less concealed by frontal feathers; proportions exceedingly varied. Eggs 2-6, white, spotted, or variously mottled or striped. An American family, chiefly neo-tropical, of widest range and diversity, by reason of which many Oscinine groups are curiously shadowed or simulated. Nearly 600 forms known, of which 33 species North American and 17 Californian.

I. Wing more than 3 inches long.
  A. Plumage with red.
    1. Wing about 3 inches; tail normal. — **179. Vermilion Flycatcher.**
    2. Wing nearly 5 inches; tail lengthened. — **163. Scissor-tailed Flycatcher.**
  B. Plumage without red.
    1. Tip of tail broadly white. — **164. Kingbird.**
    2. Tip of tail not broadly white.
      a. Underparts yellow or yellowish.
        (1). Belly bright yellow.
          (a). Edge of tail abruptly white; whitish of throat not contrasting. — **165. Western Kingbird.**
          (b). Edge of tail merely pale; white of throat definitely contrasting with surrounding gray. — **166. Cassin's Kingbird.**
        (2). Belly pale yellow or merely yellowish.
          (a). Upper plumage extensively bright brown.
            (a^1). Larger, wing about 4.30. — **167. Arizona Crested Flycatcher.**
            (b^1). Smaller, wing 4.00 or under. — **168. Ash-throated Flycatcher.**
          (b). Plumage dark brown or blackish.
            (a^1). Length about 7 inches. — **177. Olive-sided Flycatcher.**
            (b^1). Length about 6 inches.
              (a^2). Bill narrow and relatively deep. — **169. Phoebe.**
              (b^2). Bill wider and flatter. — **178. Western Wood Pewee.**
      b. Underparts contrasting black and white. — **170. Black Phoebe.**
      c. Underparts cinnamon-buff. — **171. Say's Phoebe.**

II. Wing less than 3 inches.
  A. Underparts distinctly yellow. — **172. Western Flycatcher.**
  B. Underparts merely yellowish or sordid grayish.
    1. Above brownish olive; bill normal, width at nostril mm 6 (.24). — **173. Brewster's Flycatcher.**
    2. Upperparts olive; bill relatively narrow, width at nostril mm 4.6 (.18). — **174. Hammond's Flycatcher.**
    3. Upperparts grayer and lighter.
      a. Smaller; outermost primary *shorter* than 6th (5th "new style"). — **175. Wright's Flycatcher.**
      b. Larger; outermost primary as long as or longer than 6th. — **176. Gray Flycatcher.**

ORDER 2. TROCHILIFORMES.

Family TROCHILIDÆ. **Hummingbirds.**

Key to ADULT MALES.

I. Crown as well as gorget metallic iridescent.
  A. Crown and gorget purple; larger. — **184. Anna's Hummer.**
  B. Crown and gorget violet; smaller. — **185. Costa's Hummer.**

II. Crown like back; throat scaled.
  A. Gorget some shade of red.
    1. Metallic scales of throat interrupted, ray-like. — **180. Calliope Hummer.**
    2. Throat-scales lilac-red; outermost primary acicular, its tip inclined forward. — **181. Broad-tailed Hummer.**
    3. Throat- scales coppery red; back green; the chestnut confined to sides and tail. — **182. Allen's Hummer.**
    4. Throat-scales coppery-red; back chiefly chestnut. — **183. Rufous Hummer.**
  B. Gorget opaque black, changing posteriorly to violet. — **186. Black-chinned Hummer.**

Key to BOTH SEXES.

I. Plumage showing rufous.
  A. Smallest; length 2.75; central tail-feathers broadening near tip. — **180. Calliope Hummer.**
  B. Length about 3.35; tail rounded in both sexes, the feathers tapering.

1. Tail-feathers sharply tapering, the outermost pair acicular, the 4th unmodified. **182. Allen's Hummer.**
2. Tail-feathers broader, the 4th pair sharply nicked near tip on inner web. **183. Rufous Hummer.**

C. Length up to 3.80; tail broad, the three central pairs of rectrices of about equal length (male); female best known from absence of characters described in A and B. **181. Broad-tailed Hummer.**

II. Plumage without rufous.

A. Largest; breadth of outermost pair of rectrices well sustained to tip.

1. Length up to 4 inches; lateral rectrix more than 5 mm wide. **184. Anna Hummer.**
2. Length about 3.40; lateral rectrix 4 mm or less. **185. Costa's Hummer.**

B. Length about 3.75; lateral rectrices abruptly tapering to tip. **186. Black-chinned Hummer.**

Order 3. CYPSELIFORMES.

Family Cypselidæ. **Swifts, Swiftlets.**

1. Plumage chiefly blackish, tarsi naked.
   A. Largest, length 7 inches or more. **188. Northern Black Swift.**
   B. Smaller, length 5 inches. **189. Vaux's Swift**
2. Throat and breast white. **197. White-throated Swift.**

Order 4. PICIFORMES.

Family Picidæ. **Woodpeckers, Wrynecks, Piculets.**

A rather homogeneous group of tree-haunting birds with special adaptation for climbing, boring, or the apprehension of ants. The *Picinæ*, or Woodpeckers proper, which alone are found in the United States, have stout, usually straight, chisel-shaped beaks; wings with 10 primaries, the outer reduced or "spurious"; rectrices 12 (the outer pair often spurious; feet "zygodactylous" by reversion of the 4th toe, (the hallux wanting in one group); tongue often remarkably extensible by reason of development of hyoid apparatus. Pygmy to crow size. Eggs 3 or 4—10, pure white; young naked. A cosmopolitan group of more than 400 species and subspecies, of which 16 species Californian.

I. With only 3 toes. **195. Arctic Three-toed Woodpecker.**

II. With 4 toes.

A. Length about 17 inches; head crested. **199. Western Pileated Woodpecker.**

B. Length over 10 inches, under 14.

1. Bill straight; plumage black above, red below. **201. Lewis's Woodpecker.**
2. Bill slightly decurved.
   a. Length 12-13 inches; quills golden yellow. **203. Yellow-shafted Flicker.**
   b. Length up to 14 inches; quills orange-red. **204. Red-shafted Flicker.**
   c. Length 10-11 inches; quills yellow. **205. Mearns's Gilded Flicker.**

C. Length over 8, under 10 inches.

1. Chiefly black above; underparts white interrupted by black collar. **200. California Woodpecker.**
2. Head white, remaining plumage black. **194. White-headed Woodpecker.**
3. Back black, broadly striped with white; underparts white. **190. Hairy Woodpecker.**
4. Plumage highly variegated.
   a. Belly not yellow.
      (1). Crown, nape, and throat red. **196. Red-naped Sapsucker.**
      (2). Head and breast buried in red. **197. Red-breasted Sapsucker.**
   b. Belly yellow.
      (1). Belly broadly yellow, rump pure white; sexes dissimilar. **198. Williamson's Sapsucker.**
      (2). Belly narrowly yellow, rump barred with black; sexes similar. **199. Gila Woodpecker.**

D. Length under 8 inches.

1. Back black, broadly striped with white. **191. Downy Woodpecker.**
2. Back black, cross-barred with white.
   a. Crown (of adult male) crimson. **192. Cactus Woodpecker.**
   b. Occiput only (of adult male) crimson. **193. Nuttall's Woodpecker.**

Order 5. CORACIIFORMES

Family Alcedinidæ. **Kingfishers.**

Roller-like birds having highly developed, usually straight and acute beaks, with corresponding development of foreparts; 11 primaries; 11-14 secondaries; rectrices usually 10; feet small and weak, unsuitable for progression,

"sympelmous," the outer (4th) and middle toes *united for at least half their length*; the inner toe (2nd) weakened; the soles of all greatly flattened; plumage often highly colored. Size pygmy to crow. Eggs 2-10; pure white. A large family of cosmopolitan distribution, but chiefly palæo-tropical and Australian; some 200 forms described; only one Californian.

206. Western Belted Kingfisher.

Order 6. CAPRIMULGIFORMES.

Family Caprimulgidæ. Goatsuckers, etc.

Characters defined under the order. Nearly cosmopolitan. About 125 species. 3 Californian.

I. Bristles well developed; nostrils distinctly tubular. **207. Nuttall's Poorwill.**
II. Bristles minute; nostrils scarcely tubular.
  A. A white patch on primaries occupying 5 outer quills and placed proximally to the tip of the 7th. **208. Pacific Nighthawk.**
  B. A white (or tawny) patch occupying 4 outer quills and placed more distally, opposite tip of 6th. **209. Texas Nighthawk.**

Order 7. STRIGES.

Family 1. Tytonidæ. Barn Owls.

A singularly uniform group, showing deep-seated structural differences from the other owls, as, for example, the furculum (wish-bone) ankylosed (united) to the manubrium, the anterior extension of the breast-bone. Eggs elongate ovate, not rounded. One genus of some 30 species and subspecies, one Californian.

210. American Barn Owl.

Family 2. Strigidæ. Other Owls.

I. Head with conspicuous ear-tufts.
  A. Length about 2 feet. **218. Horned Owl.**
  B. Length about 15 inches.
    1. Ear-tufts prominent. **211. Long-eared Owl.**
    2. Ear-tufts much reduced. **212. Short-eared Owl.**
  C. Length 8-10 inches; irides yellow. **216. Screech Owl.**
  D. Length about 7 inches; irides dark. **217. Flammulated Screech Owl.**
II. Head without ear-tufts.
  A. Color chiefly white. **219. Snowy Owl.**
  B. Color not extensively white.
    1. Length two feet or more. **214. Great Gray Owl.**
    2. Length 16 inches or more. **213. Spotted Owl.**
    3. Length 10 or under; tarsi lengthened, exposed. **220. Burrowing Owl.**
    4. Length about 8 inches; facial disc highly developed. **215. Saw-what Owl.**
    5. Length about 7 inches; facial disc less prominent. **221. Pygmy Owl.**
    6. Length about 6 inches; tarsi nearly naked. **222. Arizona Elf Owl.**

Order 8. COCCYGES.

Family Cuculidæ. Cuckoos.

Characters those of the order. More than 250 species, of which two Californian.

I. Length 2 feet or less; bill, tarsus and tail lengthened, ground-haunting. **223. Road-runner.**
II. Length a foot or over; tree haunting. **224. California Cuckoo.**

Order 9. COLUMBIFORMES.

Family Columbidæ. True Pigeons, Doves.

Characters those (normal) of the order. More than 400 species, 4 Californian.

I. Tarsus feathered above; largest—length about 16 inches. **225. Band-tailed Pigeon.**
II. Tarsus naked throughout.
  A. Tail of 14 feathers, lengthened, wedge-shaped. **226. Western Mourning Dove.**
  B. Tail of 12 feathers.
    1. Length about 12 inches; a white patch on wing. **227. Western White-winged Dove.**
    2. Length about 7 inches. **228. Mexican Ground Dove.**

Order 10. CHARADRIIFORMES.

Family 1. Phalaropodidæ. **Phalaropes.**

Moderate-sized Shore-birds, having special modifications fitting them for a more aquatic life; compact, "water-proof" plumage, tarsi greatly compressed (to cut the water); toes semi-palmate, and broadly margined with collapsible membrane. Females larger and more brightly colored than males. 3 species, breeding northerly, all Californian.

I. Bill broad and stout; lobes of feet pronounced. **229. Red Phalarope.**

II. Bill slender; lobes of toes less pronounced.

A. Bill less than 1.00; lobes crenate. **230. Northern Phalarope.**

B. Bill decidedly longer than 1.00; lobes scarcely indicated. **231. Wilson's Phalarope.**

Family 2. Recurvirostridæ. **Avocets and Stilts.**

Medium-sized Shore-birds having extreme development of neck, bill and legs.

I. Bill conspicuously upturned. **232. Avocet.**

II. Bill nearly straight. **233. Black-necked Stilt.**

Family 3. Scolopacidæ. **Snipes, Sandpipers, etc.**

Smallest to largest Shore-birds, chiefly characterized by shape and texture of bill, which is slender, lengthened, usually straight, marked on both mandibles by lengthened grooves, the whole of a leathery, superficial consistency, and highly sensitive. A large group of about 100 species, chiefly of the Northern Hemisphere. 19 species Californian, of which only 4 breeding in State.

I. Bill more than 2 inches in length.

A. Bill more than 5 inches. **252. Long-billed Curlew.**

B. Bill less than 4.50 inches.

1. Bill curved downward. **253. Hudsonian Curlew.**

2. Bill straight or slightly bent upward.

a. Bill over 3.00. **244. Marbled Godwit.**

b. Bill under 3.00.

(1). Bill widened and pitted at tip.

(a). Lower portion of tibia bare for half an inch or less. **234. Wilson's Snipe.**

(b). Lower portion of tibia bare for nearly an inch. **235. Long-billed Dowitcher.**

(2). Bill not widened at tip.

(a). Wing with black and white in patches. **248. Western Willet.**

(b). Wing of inconspicuous pattern. **245. Greater Yellowlegs.**

II. Bill less than 2 inches in length.

A. Toes, 3. **243. Sanderling.**

B. Toes, 4.

1. Tail-feathers pointed. **237. Sharp-tailed Sandpiper.**

2. Tail-feathers not pointed.

a. Tail barred.

(1). Wing less than 4.50 inches. **251. Spotted Sandpiper.**

(2). Wing more than 5.00 inches.

(a). Wing over 6.00.

(a^1). Upper tail-coverts white. **246. Lesser Yellowlegs.**

(b^1) Upper tail-coverts not white. **250. Bartramian Sandpiper.**

(b). Wing under 5.50. **247. Western Solitary Sandpiper.**

b. Tail not barred.

(1). Bill over 1.20 inches.

(a). Wing over 6.50.

(a^1). Rump white. **236. Knot.**

(b^1). Rump not white. **249. Wandering Tattler.**

(b). Wing under 5.00. **241. Red-backed Sandpiper.**

(2). Bill under 1.20.

(a). Wing over 4.50.

(a^1). Bill over 1.00; wing 5.00 or more. **238. Pectoral Sandpiper.**

(b^1). Bill .90 or less; wing about 4.70. **239. Baird's Sandpiper.**

(b). Wing under 4.00.

(a^1). Toes not webbed; bill about .70. **240. Least Sandpiper.**

(b^1). Toes webbed at base; bill over .90. **242. Western Sandpiper.**

Family 4. CHARADRIIDÆ. **Plovers.**

Shore-birds of small or medium size, having plump, rounded bodies; shortened necks; long, pointed wings reaching to or beyond tip of tail; and, especially, a short bill (usually shorter than head) shaped much like that of a pigeon, i. e., contracted and softened basally, expanded and horny distally; hind toe very small or wanting. Coloration often notably black and white. A notable family, well distributed, of about 75 species—7 Californian.

I. Wing over 6.50.
  A. Wing about 8.00; axillars black. **254. Black-bellied Plover.**
  B. Wing about 6.85; axillars brownish gray. **255. American Golden Plover.**
II. Wing less than 6.50.
  A. Chest crossed by two black bands. **256. Killdeer.**
  B. Chest crossed by a single black band.
    1. Feet partially webbed; bill about .50. **257. Semipalmated Plover.**
    2. Feet not webbed; bill about .85. **259. Belding's Plover.**
  C. Black confined to sides of chest. **258. Snowy Plover.**
  D. No black on chest at any season. **260. Mountain Plover.**

Family 5. APHRIZIDÆ. **Surf-birds.**

Medium-sized Shore-birds having well-developed hallux; bill somewhat pigeon-like, but the upper mandible grooved; the nostril a lengthened slit; scutellation of acrotarsium reduced, the remainder of the tarsal envelope reticulate. A monotypic group ranging along the western coast of the Americas.

261. Surf-bird.

Family 6. ARENARIIDÆ. **Turnstones.**

Medium-sized Shore-birds having well-developed but small hallux; tarsus with regular scutellæ both in front and behind; bill compressed, short, sharpened; nostrils slit-like; tail slightly rounded. A wide-ranging, northern family of two species, both Californian.

I. Chin and throat always white; plumage variegated. **262. Turnstone.**
II. Foreparts, including chin and throat, blackish. **263. Black Turnstone.**

Family 7. HÆMATOPODIDÆ. **Oyster-catchers.**

Large-sized, sturdy, rock-haunting Shore-birds, having all black, or black-and-white plumage, stout feet and legs, with only 3 toes, and large, exceedingly compressed chisel-shaped beaks adapted to prying. A single genus of a dozen species and subspecies, haunting the tropic and temperate shores of the world.

I. Plumage all black. **265. Black Oyster-catcher.**
II. Plumage black and white. **264. Frazar's Oyster-catcher.**

ORDER 11. LARIFORMES.

Family 1. STERCORARIIDÆ. **Skuas and Jaegers.**

Long-winged and chiefly long-tailed *Lari*, having extensive cere on maxilla, strongly hooked beak; and claws relatively large, sharp, and strongly curved. A highly specialized, predatory group, enjoying peculiar immunity by reason of close resemblance to milder forms. Chiefly sub-Arctic and sub-Antarctic in distribution, but roving with quarry. Seven species, of which 4 Californian.

I. Largest and stoutest; wing over 15.00 inches. **266. South American Skua.**
II. Smaller and lighter; wing under 15.00.
  A. Middle pair of rectrices broad throughout, their distal portion twisted and tips rounded. **267. Pomarine Jaeger.**
  B. Middle rectrices tapering, sharp-pointed, not twisted.
    1. Central pair of rectrices projecting about 4 inches beyond others. **268. Parasitic Jaeger.**
    2. Central rectrices projecting about 8 inches. **269. Long-tailed Jaeger.**

Family 2. LARIDÆ. **Gulls.**

Somewhat stoutly proportioned *Lari*, having moderate wing development; tail usually square; stronger feet, compressed tarsi; bill relatively stout, moderately and broadly, or just perceptibly, hooked, the gonydeal angle emphasized. A well-distributed group of some 60 species, of which 13 are reported as Californian, although not more than 3 as breeders.

I. Hind toe minute. — **270. Pacific Kittiwake.**
II. Tail forked to a depth of 1.25 inches. — **282. Sabine's Gull.**
III. Tail square; hind toe developed.
A. Head, in summer, blackish hooded; underparts flushed with rosy.
1. Bill red in summer. — **279. Franklin's Gull.**
2. Bill black in summer. — **280. Bonaparte's Gull.**
B. Mantle gray; underparts white; head never hooded with black.
1. Larger—length 22.00 or over; feet rosy or livid flesh-color.
a. Primaries without black.
(1). Primaries white throughout.
(a). Larger—length over 26.00. — **271. Glaucous Gull.**
(b). Smaller—length about 24.00. — **272. Iceland Gull.**
Note: The dimensions given in the text, p. 1365, are erroneous. Read: wing 385 (15.20); tail 1.60 (6.30); bill 44 (1.73); tarsus 53.2 (2.09).
(2). Primaries gray. — **273. Glaucous-winged Gull.**
b. Primaries tipped, broadly, with black.
(1). Mantle dark slaty blue. — **274. Western Gull.**
(2). Mantle much lighter, deep pearl-gray. — **275. Herring Gull.**
2. Smaller—length usually under 22.00; feet and legs yellow or greenish gray.
a. Bill relatively stout, marked at gonydeal angle with vermilion and a touch of black; mantle deep pearl-gray; feet and legs greenish gray; length 20.00-22.00. — **276. California Gull.**
b. Bill crossed near tip by dark band; mantle pearl gray; feet and legs greenish yellow; length 20.00-22.00. — **277. Ring-billed Gull.**
c. Bill weaker, without black; mantle deep pearl gray; feet greenish yellow; length 16.00-18.00. — **278. Short-billed Gull.**
C. Body-plumage dark, sooty to plumbeous slate; head and neck white; bill chiefly red. — **281. Heermann's Gull.**

Family 3. Sternidæ. **Terns.**

Chiefly slenderly proportioned *Lari*, having extremely long, pointed wings; tail usually deeply forked; bill slender, sharply pointed; curvature of culmen slight; gonydeal angle inconspicuous; legs placed farther back than in *Laridæ;* feet relatively small, webbing of toes usually incised. Found chiefly upon inland waters save during migrations. About 60 species known, of which 8 Californian.

I. Largest—length 20.00-23.00 inches; proportions stout; tail only slightly forked. — **283. Caspian Tern.**
II. "Crow-sized"—length about 19.00; proportions more slender; tail deeply forked; feet and legs black.
A. Bill stouter, depth at base about .79 inches. — **284. Royal Tern.**
B. Bill slenderer, depth at base about .50. — **285. Elegant Tern.**
III. Length about 15.00; slenderest; tail deeply forked; plumage white and gray with black cap (breeding).
A. Bill red, broadly tipped with black in breeding season.
1. Outer pair of feathers dark on inner webs. — **286. Forster's Tern.**
2. Outer pair of feathers dark on outer webs. — **287. Common Tern.**
B. Bill pure red or only slightly tipped with black in breeding season; also more slenderly proportioned. — **288. Arctic Tern.**
IV. Length 10.00 or less.
A. Normal coloration; bill and feet yellow tipped with black; tail deeply forked. — **289. Brown's Least Tern.**
B. Plumage black (in breeding season); bill and feet black at all seasons; tail only slightly forked. — **290. Black Tern.**

Order 12. ALCIFORMES.

Family 1. Æthiidæ. **Auklets.**

Small Alcids of chunky appearance, with beaks variously modified, and often with appendages or crests of feathers. Tail of 14 feathers. 5 species, 2 Californian.

I. Bill ⅔ as long as head, proportions ordinary; bird about 9 inches long. — **291. Cassin's Auklet.**
II. Size of foregoing. Bill only ¼ as long as head, stout and curiously upturned—pugged. — **292. Paroquet Auklet.**

Family 2. Cepphidæ. **Guillemots.**

Medium-sized Alcids; black, with large white blotch on wing. Rectrices 12-14. Only 1 Californian.

293. Pigeon Guillemot.

Family 3. Brachyramphidæ. **Murrelets.**

Small Alcids of somewhat lengthened (short fusiform) proportions; blackish above, white or mottled below bill acute, normal. 5 species, 3 Californian.

I. Tarsus in front (acrotarsium) "reticulate," like fine irregular cobblestones.
  A. Rectrices 14. **295. Marbled Murrelet.**
  B. Rectrices 12. **296. Xantus's Murrelet.**

II. Tarsus scutellate (scales flush or overlapping in regular series). **294. Ancient Murrelet.**

Family 4. Alcidæ. **Auks, Murres.**

Crow-sized Alcids, having nostrils concealed by dense feathers; coloration black above, white below; bill lengthened, not specially modified. Rectrices 12. 4 species; 1 (subspecies) Californian.

297. California Murre.

Family 5. Fraterculidæ. **Puffins.**

Crow-sized (or not less than crow-sized) Alcids, having stout compressed beaks, whose appearance is greatly heightened during the breeding season by the addition of various deciduous plates. Rectrices 12-14. 4 species. 3 Californian.

I. Underparts and sides of head white. **299. Horned Puffin.**

II. General plumage black.
  A. Bill enormously compressed. **298. Tufted Puffin.**
  B. Bill more moderate, with elevated horn at base. **300. Horn-billed Puffin.**

Order 13. GRUES.

Family Gruidæ. **Cranes.**

Characters additional to the order are: exposed portion of tibia bare; neck and legs greatly lengthened; bill moderately long, straight, acute, or abruptly pointed, the mandible with lateral grooves, the maxilla with deep nasal furrow; wings large, rounded, with 11 primaries and up to 22 secondaries. Two well-known Californian forms, here grouped as one species.

301. Sandhill Crane.

Order 14. RALLIFORMES.

Family Rallidæ. **Rails, etc.**

Characters those of the order. About 175 species, of which 9 (7) Californian.

I. Toes simple; body compressed; no frontal shield (*Rallinæ*)
  A. Length about 15 inches.
    1. More robust—from San Francisco Bay and northerly. **302. California Clapper Rail.**
    2. (Doubtfully) smaller and with smaller feet—from San Diego region. **303. Light-footed Rail.**
    3. From Lower Colorado River. **304. Yuma Clapper Rail.**
  B. Length above 8 inches.
    1. Bill decidedly more than an inch long. **305. Virginia Rail.**
    2. Bill decidedly less than one inch long. **306. Sora Rail.**
  C. Length 7 inches or under; yellowish brown and black. **307. Yellow Rail.**
  D. Length 6 inches or less; black. **308. California Black Rail.**

II. Having a bare, horny, frontal shield.
  A. Frontal shield chiefly reddish; toes merely margined. **309. Florida Gallinule.**
  B. Frontal shield white; toes with broad collapsible flaps, "lobate". **310. American Coot.**

Order 15. GALLIFORMES.

Family 1. Phasianidæ. Pheasants, Blood Pheasants, Coucals, Jungle-fowl, Peacocks, etc.

Old World fowls, with plumage (males at least) often highly modified, sometimes resplendent. The basal characters of the group are difficult to define, but may include naked tarsi and toes, exposed nasal fossæ, and 1st primary shorter than 10th (or if longer, as in *Phasianus*, then tail much longer than wing); and some few plain species may be known only by these signs; but the tendency to the bizarre is so strong in most members of the group that it expresses itself in a thousand fantastic ways: in lengthened, often many-feathered, or exaggerated, tails; in crests, combs, wattles, and above all, spurs, as well as color-patterns of rainbow magnificence. Eggs plain-colored, cream, ecru, cafe-au-lait, etc. Over 100 species, of which one extensively introduced in the Pacific Northwest and in California.

311. Mongolian Pheasant.

Family 2. Perdicidæ. Old World Partridges, Francolins, Quails, American Partridges and Bob whites.

Small or medium-sized gallinaceous birds, having notably compacted, "chunky" bodies; short necks; tails short and not especially conspicuous, of 12-14 feathers, or various. The basal characters, naked nasal fossæ, bare feet and legs, etc., do not distinguish infallibly from either the *Phasianidæ* on one side or the *Tetraonidæ* on the other; and it may be confessed that the name *Perdicidæ* represents only a practical grouping of a large and unwieldy family. Thus defined it embraces more than 200 species, of which 3 Californian.

I. A crest of lengthened feathers, straight or slightly decurved. **312. Mountain Quail.**

II. A crest of sharply recurved (curled forward) feathers.
- A. Darker; sides like back, with white stripes; abdomen chestnut. **313. California Quail.**
- B. Paler; sides chestnut with white; lower belly black. **314. Desert Quail.**

Family 3. Tetraonidæ. Grouse proper, Ptarmigans.

Ground- or tree-haunting *Gallinæ* having densely feathered nasal fossæ, heads completely feathered, save for strip over eye; tarsi more or less, often completely, feathered; toes if naked, then with comb-like processes on the sides. Medium-sized to large species, non-migratory, or partially nomadic, chiefly northerly or alpine ranging. About 25 species, of which 4 Californian.

I. Largest; tail wedge-shaped, as long as wing and composed of 20 stiff, pointed feathers. **318. Sage-Hen.**

II. Tail as foregoing but much shorter than wing, composed of 18 feathers. **317. Columbian Sharp-tailed Grouse.**

III. Color bluish dusky; tail square, of 16 feathers, not so long as wing. **315. Dusky (Sierra) Grouse.**

IV. Color mottled chestnut and brown; tail rounded, of 18 feathers, about as long as wing. **316. Oregon Ruffed Grouse.**

Order 16. FALCONIFORMES.

Family 1. Falconidæ. Falcons, Hobbies, Merlins, Kestrels, Caracaras.

Spirited and highly aggressive Raptors, having long pointed wings, tarsus more or less feathered, shorter than the tibia; strong feet with lengthened middle toe and sharp talons; bill sharply hooked and notched near end of maxilla; mandible truncated and notched near tip; nostrils included in cere, circular or nearly so, with central tubercle. Eggs 2-6, usually 4 or 5; deposited in holes or crannies of cliffs; ochraceous-tinged in the lowermost calcareous layers. Young covered with light down. 50 species, 4 Californian.

I. Normally proportioned.
- A. Medium sized; 18 inches or more in length.
  1. General color brownish drab; 1st (outermost) primary shorter than 3rd. **319. Prairie Falcon.**
  2. Upperparts chiefly bluish slaty; sub-rictal area projected as broad blackish moustachio outlined against white; 1st primary equal to 3rd. **320. Peregrine Falcon.**
- B. Smaller; length not over 15 inches.
  1. Upperparts bluish ash or umber brown to blackish. **321. Pigeon Hawk.**
  2. Upperparts chiefly rufous. **322. American Kestrel.**

II. Tarsi and feet lengthened and weaker; chin and sides of head nearly bare. **323. Audubon's Caracara.**

Family 2. PANDIONIDÆ. **Ospreys, Fish Hawks.**

Fish-eating birds of prey found along sea-coasts and interior waters. Plumage close and firm (water resisting); feet enormously enlarged and strengthened, the outer toe reversible to facilitate holding slippery prey. Nests, immense piles of sticks, etc. Eggs 2 or 3, rarely 4; ochraceous-tinged basally and heavily pigmented. One species, five races, nearly cosmopolitan. The American form is

324. American Osprey.

Family 3. MILVIDÆ. **Kites.**

"Ignoble," but usually very graceful birds of prey, with wings sometimes greatly lengthened; tail lengthened or various; bill and feet relatively small and weak; nostrils oval, obliquely set, usually closed in with a superior membrane; cutting edge of maxilla festooned or, rarely, toothed; tarsi more or less feathered. Not a closely homogeneous group and possibly not separable from the next. Subsists chiefly on insects and minor prey. 35 species, 1 Californian.

325. White-tailed Kite.

Family 4. BUTEONIDÆ. **Hawks, Harriers, Buzzards, Eagles, etc.**

A group of restrained characters, best defined by exclusion of more marked types. Bills various, but never strongly notched or toothed; nostrils not circular nor with central tubercle; often a well developed shield or bony plate over eye; tarsus shorter than tibia, often feathered. Wings of moderate proportions, often rounded, capable of measured and well sustained but not most rapid flight. Quarry seized by pouncing or snatching. Necessarily semi-solitary, or, occasionally, gregarious during migrations. Nest usually a substantial structure of sticks, etc. Eggs 1-6, the shells bluish white basally (and so invariably distinguished from Falconine types), plain or variously marked with reddish browns. A cosmopolitan group, of which 13 species Californian.

I. Length under 15 inches. — **327. Sharp-shinned Hawk.**

II. Length over 16 under 30 inches.

A. Plumage chiefly black.

1. Lesser and middle wing-coverts and lining of wing chestnut. — **330. Harris's Hawk.**
2. Plumage entirely black, save tail which is crossed by slaty zones. — **333. Zone-tailed Hawk.**
3. Legs feathered to toes; plumage variously black, melanistic phase of — **335. American Rough-leg.**
4. Tarsi not feasered; plumage black without trace of pattern, or faintly barred on tail, melanistic phase of — **331. Western Redtail.**

B. Plumage not chiefly black.

1. Tail nearly as long as body.
   a. Other proportions, especially legs, greatly lengthened; rump white. — **326. Marsh Hawk.**
   b. Underparts, including wings and tail, finely barred, ashy and blackish; smaller. — **328. Cooper's Hawk.**
   c. Underparts finely streaked, also wavy-barred or vermiculated, slaty on white ground; larger. — **329. Goshawk.**
2. Length of tail evidently less than that of body.
   a. Tarsi only partially feathered.
      (1). 4 outer primaries emarginate on inner webs.
         (a). Tail of adult chestnut-red with subterminal black bar; chiefly white below; no red on wing-coverts. Tail of young birds finely banded. — **331. Western Redtail.**
         (b). Tail of adult black crossed by 5 or 6 white bars; lesser wing-coverts chestnut; extensively reddish below. — **332. Red-bellied Hawk.**
      (2). Only outer primaries emarginate on inner web; color pattern highly variable, but usually marked or banded by chestnut below, especially on breast. — **334. Swainson's Hawk.**
   b. Tarsi feathered to the toes.
      (1). Below white, marked with blackish, especially in abdominal zone; upperparts dark brown to black. — **335. American Rough-leg.**
      (2). Below white, lightly marked or not at all; legs rich rufous and blackish; upperparts extensively rusty with brown and white. — **336. Ferruginous Rough-leg.**

III. Length over 30 inches.

A. Tarsi feathered to toes; adult golden brown. — **337. Golden Eagle.**
B. Lower half of tarsi bare; adult with white head and tail. — **338. Southern Bald Eagle.**

Family 5. CATHARTIDÆ. American Vultures, Turkey Vultures, and Condors.

Carrion feeders having head chiefly naked; a lengthened weak-hooked bill; completely perforate nostrils, without bony septum; feet unsuited to grasping, with bluish claws, the hind toe much shortened and somewhat elevated; wings enlarged, lengthened, and powerful. Large gull to giant size. Birds of this group spend much time awing, or when carrion is found gorge to repletion. Their plumage is somber and almost unchanging, and is often charged with a fetid odor, that of carrion. Eggs, 1 or 2, plain or highly pigmented. The young are covered with a whitish down, and have a long dependency on the ledge or in the cave which serves for nest. Six species, of which 2 Californian.

I. Largest; length up to 4½ feet; a large white blotch on under side of wing in adult. **339. California Condor.**

II. Medium sized; length up to 2½ feet; unicolored, save for red head. **340. Turkey Vulture.**

ORDER 17. ANSERES.

Family ANATIDÆ. Ducks, Geese and Swans.

Characters those of the order.

I. Lores feathered.

A. Bill cylindrical (*Merginæ*—Mergansers). Sexes unlike.

1. Bill about as long as head; loosely crested.

a. Nostrils near middle of bill; male with breast not distinctively colored. **341. American Merganser.**

b. Nostrils near base of bill; breast (of male) cinnamon-rufous streaked with black. **342. Red-breasted Merganser.**

2. Bill shorter than head; crest (of male) highly developed. **343. Hooded Merganser.**

B. Bill more or less flattened at tip; sexes unlike.

1. Hind-toe simple (*Anatinæ*—River Ducks).

a. Head crested; bill narrow. **355. Wood Duck.**

b. Head not crested.

(1). Bill much broadened at tip, "spoon-shaped." **353. Shoveller.**

(2). Bill not spoon-shaped.

(a). Tail lengthened, tapering, longest feathers more than half as long as wing. **354. Pintail (male).**

(b). Tail not lengthened, not half as long as wing.

(a^1). "Speculum" (subterminal portion of secondaries) metallic blue or purplish violet.

(a^2). Speculum bordered by white. **344. Mallard.**

(b^2). Speculum not bordered by white. **345. Black Duck.**

(b^1). Speculum not metallic blue or purplish violet.

(a^2). Speculum white. **346. Gadwall.**

(b^2). Speculum not white.

(a^3). Larger, length above 18 inches; wing length over 9.00 (mm 228).

(a^4). A large white patch on fore part of wing.

(a^5). Top of head cinnamon (male) or ochraceous (female). **347. European Widgeon.**

(b^5). Top of head white, lightly touched with blackish. **348. Baldpate.**

(b^4). No white patch on fore part of wing. **353. Pintail (female and young).**

(b^3). Smaller, length less than 17 inches; wing under 9.00 (mm 228).

(a^4). A large blue patch on fore part of wing.

(a^5). Male chiefly chestnut-red below; bill about 1.80 (mm 45.7) (352). **352. Cinnamon Teal.**

(b^5). Male without chestnut; a white crescent on side of head; bill of both sexes 1.60 (mm 40.6) or less. **351. Blue-winged Teal.**

(b^4). No blue patch on wing.

(a^5). A white bar on side of breast (of male) **350. Green-winged Teal.**

(b^5). No white bar on breast. **349. European Teal.**

2. Hind toe with a broad thin flap (*Fuliguline*—Sea Ducks).

a. General plumage *black*, varied, or not, by white.

(1). Plumage entirely black. **367. American Scoter.**

(2). Speculum and a spot below and including eye white. **368. White-winged Scoter.**

(3). Nape and forehead white. **369. Surf Scoter.**

(4). Underparts white; wings highly varied by white; a rounded white spot on side of head near bill.

(5). As in foregoing, but spot on side of head open-wing-shaped.

(6). Smallest; white still more extended; collar and occiput from eye to eye white.

b. Color pattern of head and neck (or head, neck and fore-breast) more or less set off from that of remaining plumage.

(1). Distinction less sharply defined; black of head and neck separated from that of back by obscure chestnut collar.

(2). Head, neck and breast black contrasting with variegated character of remaining plumage.

(a). Larger, length over 17.50 inches.

(b). Smaller, length under 17.00.

(3). Head and neck chiefly rufous or brown.

(a). Head and neck bright chestnut; bill forming distinct angle with forehead.

(b). Head and neck rufous and black; slope of bill continuous with that of forehead.

(c). Head and neck snuff-brown, contrasting with grayish dusky and white of body plumage.

(d). Head and neck snuff-brown; fore-neck and breast dark brown; sides vermiculated grayish brown on white; region about base of bill (at least chin) white.

(e). Head and neck mouse-brown; a dull white patch below and behind eye.

c. Color pattern variously distinctive.

(1). Rich dark brown, ashy gray and white; tail feathers of male greatly elongated.

(2). Plumbeous slate slashed with white; female obscurely brown and whitish.

(3). Head highly variegated, black, white, blue and green; bill greatly swollen at base (gibbous).

(4). Crown and nape black; cheeks and chin white; remaining plumage chiefly rich chestnut; female obscurely dusky, but sides of head and neck whitish; quills of rectrices more or less denuded.

C. Bill heightened at base, not or not conspicuously flattened at tip; tarsi and feet relatively small. Sexes alike (*Anserinæ* — Geese).

1. Plumage chiefly white or bluish gray; bill not longer than head, sharply tapering, its lamellæ much exposed.

a. Plumage white.

(1). Larger; bill about 2 inches long.

(2). Smaller; bill about an inch and a half long.

b. Plumage chiefly bluish gray.

2. Plumage chiefly gray, the underparts extensively black in shingled or blotchy scaled pattern.

3. Of dark coloration; head and neck black with touches of white; bill and feet black.

a. Body plumage lighter; cheeks and upper throat white.

b. More extensively black, and general tone of body plumage darker. No white on upper throat or cheeks, touches on sides of neck instead.

4. Entire body plumage handsomely scaled; head and hind neck white tinged with rusty yellow; throat blackish.

D. Bill intermediate in character; tarsi and legs relatively much larger. (*Dendrocygninæ*—Tree Ducks).

1. A large white patch on wing; plumage extensively blackish

2. No white on wing; plumage chiefly yellowish brown.

II. Lores chiefly bare; neck greatly lengthened; plumage (of American species) pure white. (*Cygninæ*—Swans).

A. Smaller; tail-feathers normally 20; usually a yellow spot in front of eye.

B. Larger; tail-feathers normally 24; no yellow spot on lores.

361. American Golden-eye (male).

362. Barrow's Golden-eye.

363. Bufflehead (male).

360. Ring-necked Duck.

358. Greater Scaup Duck.
359. Lesser Scaup Duck.

356. Redhead.

357. Canvasback.

361 and 362. American and Barrow's Golden-eyes (females).

358 and 359. The Scaups (females).

363. Bufflehead (female).

364. Old-Squaw.

365. Harlequin Duck.

366. King Eider.

370. Ruddy Duck.

371. Lesser Snow Goose.
373. Ross's Snow Goose.
372. Blue Goose.

374. White-fronted Goose.

375. Canada Goose.

376. Brant.

377. Emperor Goose.

378. Black-bellied Tree Duck.
379. Fulvous Tree Duck.

380. Whistling Swan.
381. Trumpeter Swan.

Order 18. HERODIONES.

Family 1. Ardeidæ. Herons, Egrets, Bitterns.

Solitary or semi-gregarious wading birds of lengthened proportions, having two or three pairs of powder down patches; plumage loose; color pattern simple (Egrets) or highly diversified (Bitterns, etc.); head, *except lores*, completely feathered. Birds of deliberate, dignified bearing and leisurely flight, or else marsh-skulking (Bitterns). Nesting solitary or colonial. Eggs unmarked; over 100 species, of which 8 Californian.

I. Tail feathers 12; powder down patches, 3 pairs (*Ardeinæ*).
  A. Plumage white.
    1. Larger, length 35.00 or over. **383. American Egret.**
    2. Smaller, length about 24.00. **384. Snowy Egret.**
  B. Plumage not white.
    1. Bill slender, longer than head.
      a. Largest, length about 48.00. **382. Great Blue Heron.**
      b. Of medium size, length about 25.00 (accidental?). **385. Louisiana Heron.**
      c. Smallest, length about 17.00. **386. Anthony's Green Heron.**
    2. Bill stout, not longer than head. **387. Black-crowned Night Heron.**

II. Tail feathers 10; powder down patches, 2 pairs (*Botaurinæ*).
  A. Larger, length about 30.00. **388. American Bittern.**
  B. Smaller, length about 13.00. **389. Least Bittern.**

Family 2. Ciconiidæ. Storks, Adjutants, Wood Ibises, etc.

Wading or stalking birds of stouter proportions (than true herons), especially of neck and bill. They have only 10 rectrices and no powder down patches. Birds of this family are capable of vigorous, sustained flight, but are voiceless. Eggs white, sometimes roughened, unmarked. About 20 species, of which one wanders occasionally into California. **390. Wood Ibis.**

Family 3. Ibididæ. Ibises.

Medium or large-sized *Herodiones*, having cylindrical decurved bills and stouter legs; the anterior toes slightly webbed at the base, the hind toe somewhat elevated. While members of this group have a close superficial resemblance, their eggs indicate divergences of great antiquity. About 30 species, one of regular occurrence in California.

391. White-faced Glossy Ibis.

Family 4. Plataleidæ. Spoon-bills.

Ibises with specially modified bills, which are long and flat with widened, rounded tips. Six species, of which one casual in California.

392. Roseate Spoon-bill.

Order 19. STEGANOPODES.

Family 1. Phaëthontidæ. Tropic-birds.

Crow-sized oceanic species having rather stout head and neck, plumage white varied by black above; and central pair of tail-feathers extraordinarily lengthened. The birds fly with quick regular stroke, range several hundred miles from land, and secure their prey by plunging from above, tern-fashion. 6 or 7 species known, of which one has ranged north to California.

393. Red-billed Tropic-bird.

Family 2. Anhingidæ. Darters.

Fresh-water or brackish-lagoon diving-birds, with slender bodies, elongated necks, and heads curiously reduced in size. Degree of bird's submergence evidently controlled by pneumatic sacs, so that it habitually swims with only neck and head, a "snake's head," protruding. Four species, chiefly tropical, of which the American representative barely reaches southeastern California.

394. Water Turkey.

Family 3. Phalacrocoracidæ. Shags, or Cormorants.

Sturdy, fish-eating, swimming and diving birds, having plumage chiefly lustrous black or black-and-white; lengthened necks; heads reduced in size (but not so much as in *Anhinga*), and legs inserted well back, insomuch that they stand erect and rest more or less upon the tarsus. Cormorants haunt off-shore rocks and range chiefly within a dozen miles of land, or else upon the larger interior waters. A widely distributed group boasting some 40 species, of which 3 are Californian.

I. Larger; iris green.
  A. Gular area definitely yellow; black of body plumage with greenish lusters; more brownish in immatures. **395. Farallon Cormorant.**

B. Gular area blue, or only obscurely yellowish on borders; blacker, more lustrous, with violet or steel-blue reflections. **396. Brandt's Cormorant.**

II. Smaller; iris red. Shining black, or with conspicuous white flank-patches in breeding season only; bill much smaller. **397. Baird's Cormorant.**

Family 4. PELECANIDÆ. **Pelicans.**

Giant-sized birds having bills and gular pouches extraordinarily developed. Found on coastal and major interior waters, and breeding in colonies. A wide-ranging group of 9 or 10 species, of which 2 Californian.

I. Plumage chiefly white. **398. White Pelican.**

II. Plumage chiefly brown. **399. California Brown Pelican.**

Family 5. FREGATIDÆ. **Man-o'-war-birds.**

An aberrant raptorial, parasitic group of two closely related species, having stout hooked beaks; small feet; long forked tails; and greatly lengthened, powerful wings. They are unsurpassed in wing power, and range widely over the open seas. An occasional visitant to California is

400. Pacific Man-o'-war-bird.

ORDER 20. PROCELLARIIFORMES. Petrels, etc.

Family 1. DIOMEDIIDÆ. **Albatrosses.**

Size largest, that of a goose; wings long and narrow, with numerous flight-feathers (up to 50). Flying powers unsurpassed, and sea range least limited. Build open nests in vast colonies on uninhabited islands, chiefly in South Temperate Zone. Many geographical races, and about a dozen good species, of which 2 Californian.

I. Larger, averaging 3 feet in length; plumage (of adult) chiefly white; bill and feet light-colored. **402. Short-tailed Albatross.**

II. Smaller, averaging about 32 inches; plumage of adult and young sooty black; bill dark; feet black. **401. Black-footed Albatross.**

Family 2. PROCELLARIIDÆ. **Petrels, etc.**

Small to large Procellarids, having nostrils united in one double-barrelled tube laid along culmen at base. Family otherwise of diverse character and appearance, but color pattern "low," and distinctions within the sub-groups difficult. Tireless watchers of the sea, migrating in immense hordes (Shearwaters), or fluttering over the surface of the ocean in fashion all but independent (Petrels). About 100 species, of which 14 "Californian" by reason of capture in contiguous waters—only 4, all *Oceanodromæ*, "resident" as breeders.

I. Larger, length 12 inches or more.
  A. Mandible not down-turned at tip.
    1. Bill stout, not lamellate; appearance gull-like. **403. Fulmar.**
    2. Bill flattened, lamellate, not gull-like. **404. Pintado Petrel.**
  B. Mandible down-turned at tip.
    1. Nasal tube short, flattened, and terminating obliquely.
      a. Two-colored, dark type, white below.
        (1). Largest, length about 18.00; slate-colored above. **405. Pink-footed Shearwater.**
        (2). Middle-sized, length 16.50; paler (dark gray) above; white on inner webs of primaries. **410. New Zealand Shearwater.**
        (3). Smallest, length about 12.00. **406. Black-vented Shearwater.**
      b. Nearly uniform sooty brown or blackish.
        (1). Largest, length above 19.50; wing-linings sooty brown; tarsi and toes flesh-color. **408. Flesh-footed Shearwater.**
        (2). Not so large, length about 18.30; wing-linings white; tarsi and toes black and yellow. **407. Dark-bodied Shearwater.**
        (3). Smallest, length about 15.50; wing-lining restrictedly white; "feet and legs light gray and dusky." **409. Slender-billed Shearwater.**
    2. Nasal tube ending abruptly, somewhat as in Fulmar. **411. Black-tailed Shearwater.**

II. Smaller, length less than 10 inches.
  A. Tarsus little, if any, longer than middle toe and claw.
    1. General plumage bluish gray. **412. Fork-tailed Petrel.**
    2. General plumage blackish. **413. Leach's Petrel.**
      a. Upper tail-coverts white.
      b. No white anywhere.
        (1). Smaller; plumbeous black. **414. Coues's Petrel.**
        (2). Larger; more definitely black. **415. Black Petrel.**
  B. Tarsus much longer than middle toe and claw. **416. Wilson's Petrel.**

Order 21. GAVIÆ.

Family Gaviidæ. **Loons.**

Characters those of the order. 4 species, 3 Californian.

I. Larger, about 3 inches. **417. Common Loon.**

II. Smaller, length about 26 inches.

A. Throat black (summer); not white-spotted above in winter. **418. Pacific Loon.**

B. Throat red (summer); back spotted with white in winter. **419. Red-throated Loon.**

Order 22. PODICIPEDES.

Family Podicipedidæ. **Grebes.**

Characters those of the order. About 25 species, 5 Californian.

I. Larger.

A. Length about 26 inches; neck lengthened. **420. Western Grebe.**

B. Length about 19 inches; neck stouter. **421. Holboell's Grebe.**

II. Smaller, length about 13 inches.

A. Bill slender, black.

1. Bill stouter, not flattened at base; fore-neck cinnamon-rufous (in summer); upperparts grayish dusky (winter). **422. Horned Grebe.**

2. Bill slenderer, slightly flattened at base; neck entirely black (summer); upperparts grayish black, the breast washed with dusky. **423. American Eared Grebe.**

B. Bill stout, light-colored, crossed midway by dark band. **424. Pied-billed Grebe.**

Hypothetical List

The sequence of species is substantially that followed in the body of the work

Foreword

In submitting a list of species of presumptive or alleged occurrence within the limits of California, care has been taken to exclude:

1st. Those whose alleged occurrence has been based upon a manifestly imperfect understanding of taxonomic relationships now made clear; e. g., the White-cheeked Goose, *Branta canadensis occidentalis* (Baird).

2nd. Manifestly erroneous ascriptions which lack a sufficient color of probability to entitle them to continued notice; e. g., the Woodcock, *Philohela minor* (Gmelin).

3rd. Those whose occurrence has been loosely ascribed to "California" by early voyageurs who were at no pains to specify localities or exact circumstances. Ornithological literature has long borne the burden of such "records," made for the most part by collectors or collectors' friends who touched indiscriminately at many Pacific ports, including those of South America, or who crossed distant waters; and who yet mentioned "California" as being the place most likely to secure them ready recognition.

The remaining "hypotheticals" arrange themselves chiefly in the following classes:

1st. Birds whose presumed occurrence in California is based upon insufficient or unconfirmed evidence; e. g., Snow Bunting, *Plectrophenax nivalis nivalis* (Linnæus).

2nd. Birds whose occurrence is indisputable, but whose presence is presumed to have been due to artificial agencies; e. g., Gray's Tanager, *Piranga rubriceps* Gray.

3rd. Birds whose taxonomic status is still in doubt; e. g., Craveri's Murrelet, *Brachyramphus craverii* (Salvadori).

4th. Birds of unique appearance whose validity as species is not exactly determinable; e. g., Cooper's Hen-hawk, *Buteo cooperi* Cassin.

5th. Hybrids.

6th. Introduced species which have either failed to establish themselves, or whose ability to do so is in doubt.

In the preparation of this list the author has been closely dependent upon the data laboriously prepared by Dr. Grinnell and published in his "Distributional List" (Hollywood, Oct. 21, 1915). Only two additional species (*Motacilla ocularis* and *Branta ruficollis*) receive consideration here; but many cases reported adversely by Dr. Grinnell have been dismissed from attention. Whereas the Grinnell list has 61 titles, we are content with 33, as follows:

1. **Corvus cryptoleucus** Couch. White-necked Raven.

Authority: **Bendire,** Life Hist. N. A. Birds, vol. ii., 1895, p. 402, records nesting at Fort Tejon. *Normal Range:* Southeastern Arizona east to western Texas and south in Mexico to Michoacan. *Opinion.*—Records dubious but not impossible, as bird is known to have enjoyed, formerly, a much wider range.

2. **Icterus icterus** (Linnæus). Troupial.

Authority: **Bowles,** Condor, xiii., 1911, p. 109, reports taking of male at Santa Barbara, April 30, 1911. Specimen extant. *Normal Range:* Colombia and Venezuela. *Opinion.*—A rather challenging occurrence, supported apparently by the synchronous appearance of two other birds of the same species at a point several miles distant. These may all have been escaped cage-birds, but evidence to the contrary is about as strong as that of such an utterly anomalous case could be.

3. **Fringilla cœlebs** Linnæus. European Chaffinch.

Two occurrences: Specimen shot by Joseph Clemens at Monterey, March 4, 1905 (*Auct.* J. Grinnell, Condor, viii., 1906, p. 58); and one seen in Berkeley, May 14, 1908 (*Auct.* T. S. Palmer, Condor, x., 1908, p. 238). *Range:* Europe. *Opinion.*—Unquestionably escaped cage-birds.

4. **Plectrophenax nivalis nivalis** (Linnæus). Snow Bunting.

Authority: **Belding,** Condor, v., 1903, p. 19, claims that a flock visited Marysville, in Yuba County, in the winter of 1872-73. *Normal Range:* Arctic and sub-Arctic regions, south

in winter to Northern States, etc. *Opinion.*—Highly probable, although no specimen preserved, and not elsewhere reported south of Harney County, Oregon.

5. **Cardinalis cardinalis cardinalis** (Linnæus). Eastern Cardinal.

Introduced in Sacramento County in 1880 and survived for some years (**Belding,** Land Birds of the Pac. Dist., 1890, p. 175), but not now known as having survived. Several other records, all presumably of escaped cage or aviary specimens.

6. **Pyrrhuloxia sinuata sinuata** (Bonaparte). Arizona Pyrrhuloxia.

Authority: **Sharpe,** Cat. Birds Brit. Mus., xii., 1888, p. 158, records specimen from "California"; and Coues (Proc. Acad. Nat. Sci. Phila., 1866, p. 90) from Ft. Yuma (Arizona, on banks of the Colorado River). *Normal Range:* Southern Arizona, southern New Mexico and western Texas, south through western Mexico to Sinoloa. *Opinion.*—In all probability has occurred in Colorado River valley and, possibly, in the old mesquite forest of the Coachella trough, but records not considered as established.

7. **Piranga rubriceps** Gray. Gray's Tanager.

Authority: **W. E. Bryant** reports (Auk, iv., 1887, p. 78) specimen shot by W. G. Blunt at Dos Palos (later, Naples), Santa Barbara County, "about 1871." *Normal Range:* Colombia, Ecuador, Peru. *Opinion.*—Probably an escaped cage-bird.

8. **Dendroica graciæ** Baird. Grace's Warbler.

Authority: **Evermann,** Auk, iii., 1886, p. 185, records specimen shot near Santa Paula, Ventura County, May 3, 1881—lost in San Francisco fire, 1906. *Normal Range:* Breeds in mountains of Arizona, New Mexico and southern Colorado, south to Sonora and Chihuahua. *Opinion.*—Probably a good record, but may possibly have been off plumage of Townsend Warbler.

9. **Toxostoma rufum** (Linnæus). Brown Thrasher.

Authority: **Baird**(?) in Baird, Brewer and Ridgway, Hist. N. A. Birds, iii., 1874, p. 500, reports a specimen seen but not secured by Dr. J. G. Cooper at Clear Lake in September, 1870. *Normal Range:* Eastern North America, exceptionally west to Wyoming and even Arizona. *Opinion.*—Occurrence entirely possible, but data regrettably meager.

10. **Motacilla ocularis** Swinhoe. Swinhoe's Wagtail.

The appearance of a bird believed to be of this species in Santa Barbara (about 1912?) was reported by the late Bradford Torrey to his friends, but the observer's modesty prevented a published claim. Mr. Torrey had the bird at close range and could hardly have been mistaken. The species summers in northern Siberia, and there are Alaskan records of stragglers, one even from Lower California! (Ridgway, Proc. U. S. Nat. Mus., iv., 1882, 414, La Paz, L. C.).

11. **Muscivora tyrannus** (Linnæus). Fork-tailed Flycatcher.

Authority: **Toppan,** Ornithologist and Oölogist, ix., 1884, p. 48, reports having received from a dealer at Santa Monica a specimen said to have been shot near that place in late summer 1883. The specimen in question was destroyed by fire in 1896. *Normal Range:* Southern Mexico to Patagonia, but has wandered north on several occasions and as far as Maine. *Opinion.*—Entirely possible, but data "regrettably meager."

12. **Eugenes fulgens** (Swainson). Rivoli's Hummer.

Authority: **Loomis,** Auk, xix., 1902, p. 83, states that a male was taken by J. A. Kusche in San Gorgonio Pass, Riverside County, July 15, 1899, and that the specimen was placed in the Academy collections (destroyed by fire in 1906). This record has been questioned by Stephens (Condor, iv., 1902, p. 42), but the occurrence at the point claimed of a species which breeds in the mountains of southeastern Arizona (south to Nicaragua) is not at all impossible.

13. **"Archilochus violajugulum"** (Jeffries). Violet-throated Hummingbird.

Described by its discoverer, J. A. Jeffries, who took type and only specimen at Santa Barbara, April 5, 1883 (Auk, v., 1888, p. 168). The specimen, an adult male, is conceded to be a hybrid between two local species, *Archilochus alexandri* and *Calypte anna.*

14. **"Selasphorus floresii"** Gould. Floresi's Hummingbird.

Originally described by Gould in 1861 from a specimen said to have been taken at Bolanos, Jalisco, Mexico; but since the only other known specimens, three in number (San Francisco, by W. E. Bryant, 1885; Haywards, by O. Emerson, Feb. 20, 1901; and Nicasio, Marin Co., by W. P. Taylor, Feb. 26, 1909), hail from "the Bay section" of California, it is surmised that Floresi, who also collected in California, may really have collected his "Balanos" specimen in the same locality. The form is, unquestionably, a hybrid between *Selasphorus alleni* and *Calypte anna,*—respectively our earliest migrant and exclusively resident species.

15. **Melanerpes erythrocephalus** (Linnæus). Red-headed Woodpecker.

Authority: **Gambel,** Journ. Acad. Nat. Sci. Phila., 2nd ser., 1, 1847, p. 55, reports finding this bird common in oak timber near the Mission San Gabriel (Los Angeles County). Either Gambel was nodding when this statement fell from his pen, or else the sudden substitution of *M. erythrocephalus* for *M. formicivorus* deserved more rigid investigation. The Red-headed Woodpecker is normally confined to the region east of the Rockies, but it has occurred casually as far west as Arizona, and its sporadic appearance in California would not be exactly impossible.

16. **Ceryle americana septentrionalis** Sharpe. Texas Kingfisher.

Authority: **Coues,** Proc. Acad. Nat. Sci. Phila., 1866, p. 59, claims to have observed this species, along with the Belted Kingfisher, in the fall of 1865 "at several points on the Colorado River between Forts Mojave and Yuma." This is high authority, and the claim is several times repeated. However, no mention was made of birds seen on the *California* side of the river. The species inhabits tropical Mexico, and occurs north to southern Texas, with one appearance in southeastern Arizona.

17. **Otus asio brewsteri** Ridgway. Brewster's Screech Owl.

A larger, darker form of Screech Owl is presumptively resident in the northwestern humid coastal strip of California; but the line of demarcation between Ridgway's new subspecies and *O. a. bendirei* has not been agreed upon.

18. **Limosa hæmastica** (Linnæus). Hudsonian Godwit.

Authority: **Sharpe,** Cat. Birds Brit. Mus., xxiv., 1896, pp. 391, 756), "California," without citation of locality. These vague ascriptions deserve little credence, but in this case it is not impossible that a bird breeding west to western Alaska might pass down the Pacific Coast instead of carrying wholly east of the Rockies, as habitually.

19. **Numenius borealis** (Forster). Eskimo Curlew.

Authority: **Heermann,** Pac. R. R. Rep., x., 1859, p. 66, "common" "in the San Francisco market"; also two more recent ascriptions. The species, now practically extinct, was never positively recorded west of the Rocky Mountains, and the local claims are believed to have been based on small specimens or misidentification of *N. hudsonicus.*

20. **Ægialitis dubia** (Scopoli). Little Ringed Plover.

A specimen, No. 39523, U. S. Nat. Mus., supposed to have been taken at San Francisco, and first reported by Ridgway (Amer. Nat.. viii., 1874, p. 109). The evidence is not clear, but this palæarctic species has been found casually in Alaska, and might not impossibly drift down the coast.

21. **Creagrus furcatus** (Neboux). Fork-tailed Gull.

Authority: **Anthony,** Auk, xii., 1895, p. 291, "seen" "off San Diego." *Normal Range:* Galapagos Islands (breeding), south to Peru. *Opinion.*—Grinnell rightly disallows the Monterey records of Prevost and Des Murs (Voyage of the Venus, 1855), because of South American complications; but there are persistent rumors that *Creagrus* is a great wanderer, and I believe it will show up in California if it has not already done so.

22. **Brachyramphus craverii** (Salvadori). Craveri's Murrelet.

Van Rossem's record (Condor, xvii., 1915, p. 74) of numbers obtained on the ocean "about midway" between San Diego and "Los Coronados Islands" (L. C.) might pass as a record if the status of *B. craverii* as a species were not in doubt. It may prove to be nothing more than a pseudomorph of *B. hypoleucus.*

23. **Grus americana** (Linnæus). Whooping Crane.

Authority: **Audubon,** Birds Amer., 1842, p. 195, breeding "from Upper California northward"; also, **Belding,** Zoe, 11, 1891, p. 99, seen in spring and fall in Butte and Sutter Counties. Grinnell deems the evidence inconclusive, but my experience of these all-but-vanished birds in the State of Washington inclines me to a tolerant view.

24. **Perdix perdix** (Linnæus). Hungarian Partridge.

Introduced, with the scantiest evidence of success, by the California Fish and Game Commission. The Hungarian Partridge, a native of Europe, seems to afford its pursuers a maximum of sport, and its successful introduction into California would be a godsend to our harassed native species; but there is evidently a weak spot in its armor somewhere.

25. **Colinus virginianus virginianus** (Linnæus). Bob-white.

Persistent attempts have been made to introduce this eastern favorite as a game-bird of California, but all such are foredoomed to failure—unless, perchance, the price of the peltry of our various "vermin" soars to still dizzier heights.

26. **Meleagris gallopavo** subsp. Wild Turkey.

Faintly amusing efforts have been made to introduce a wild strain of this noble bird to various brands of our uncultivated hospitality; but we predict that the Wild Turkey of romance will never compete in interest and dependability with the common or Thanksgiving variety, in California.

27. **Buteo cooperi** Cassin. Cooper's Hen-hawk.

This bird of mystery, described by Cassin (Proc. Acad. Nat. Sci. Phila., 1856, p. 253) from a specimen shot by J. G. Cooper near Mountain View, Santa Clara County, in November, 1855, still remains unique and unresolved. The specimen still exists (U. S. Nat. Mus., No. 8525). It does not seem to be a hybrid; it follows no known laws of polychromatism, or color "phases";—it may, indeed, have been the very last of some tribe of feathered Mohicans, cousins to the Redtail.

28. **Buteo solitarius** Cassin. Hawaiian Buzzard.

Originally described by Ridgway (Proc. Acad. Nat. Sci. Phila., 1870, p. 149) as *Onychotes gruberi*, from a specimen labelled "California." "Gruber's Hawk" remained unique until Ridgway himself discovered its identity with the Hawaiian *Onychotes* (*Buteo*) *solitarius*, and so made it appear probable that his type specimen of *gruberi* had really come from Hawaii *via* San Francisco.

29. **Branta ruficollis** (Pallas). Red-necked Goose.

Normal Range: Northern Siberia south to the Caspian Sea and Turkestan. The specimen upon which this hypothetical record is based was bought in the San Francisco market by Lyman Belding and by him presented to Walter Bryant, then in charge of the California Academy of Sciences. It had every appearance of having been taken in the wild, and it was "full" of No. 6 shot. The specimen was preserved for years in the Cal. Acad. Sci. collections, but was, of course, destroyed in 1906. Mr. A. W. Anthony, who authorizes this statement, saw the specimen in question in 1897, and Walter Bryant detailed to him, in person, the circumstances of the bird's capture. Anthony's impression was that it had been taken in the fall, some two or three years previous, and that it was either in juvenile or in winter plumage.

30. **Phalacrocorax auritus cincinatus** (Brandt). White-crested Cormorant.

The Shags of the North Pacific are known to retire down the coast in winter. Kobbe's surmise (Bailey's Handbook of Birds, 1902, xlix.) that the White-crest is the bird of the San Francisco Bay region in winter may be correct, but the point has never been settled by measurements.

31. **Thalassogeron culminatus** (Gould). Yellow-nosed Albatross.

Normal Range: The southern oceans. Claim based on a skull "found on the outer beach near Golden Gate" at some time prior to 1868, and believed by J. G. Cooper to belong to this species. The specimen was preserved in the California Academy of Science, but was probably destroyed in the conflagration of 1906.

32. **Macronectes giganteus** (Gmelin). Giant Fulmar.

Normal Range: Waters of the southern hemisphere. *Authority:* **Cooper,** Amer. Nat. iv., 1871, p. 759, claims that this species "could often be seen" in the summer of 1861 about the whale-fishing in Monterey Bay. No succeeding confirmation. *Opinion.*—In spite of its very unusual character, I see no ground for discrediting Cooper's statement. Standing, however, as a record of sixty years ago, it may respectfully be referred to the Department of Ornithological Archaeology.

33. **Priocella glacialoides** (Smith). Slender-billed Fulmar.

To the same also must be referred this record of a skeleton found by Dr. J. G. Cooper on the beach at Santa Catalina Island in June, 1863 (B. B. &. R., Water Birds of N. Amer., 11, 1884, p. 374) and referred by him to this species. In Dr. Cooper's probity we have the most implicit confidence. Of his ability to reach accurate taxonomic conclusions with the critical apparatus then available, we cherish the friendliest doubts.

He served his day; he recorded his convictions—and passed. In spite of the printed word, the commonplaces of his experience are buried in a practical oblivion, and the very high-lights of it are obscured. Another generation demands reappraisal, restatement—re-proving perhaps. And it rejoices—for an hour. In like manner, still another generation shall exclaim, "Why, it was not thus! It could not have been so! Behold! do we not know what *is*"—Patiently, little brothers! It was, and is, and ever shall be—*never the same.*

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